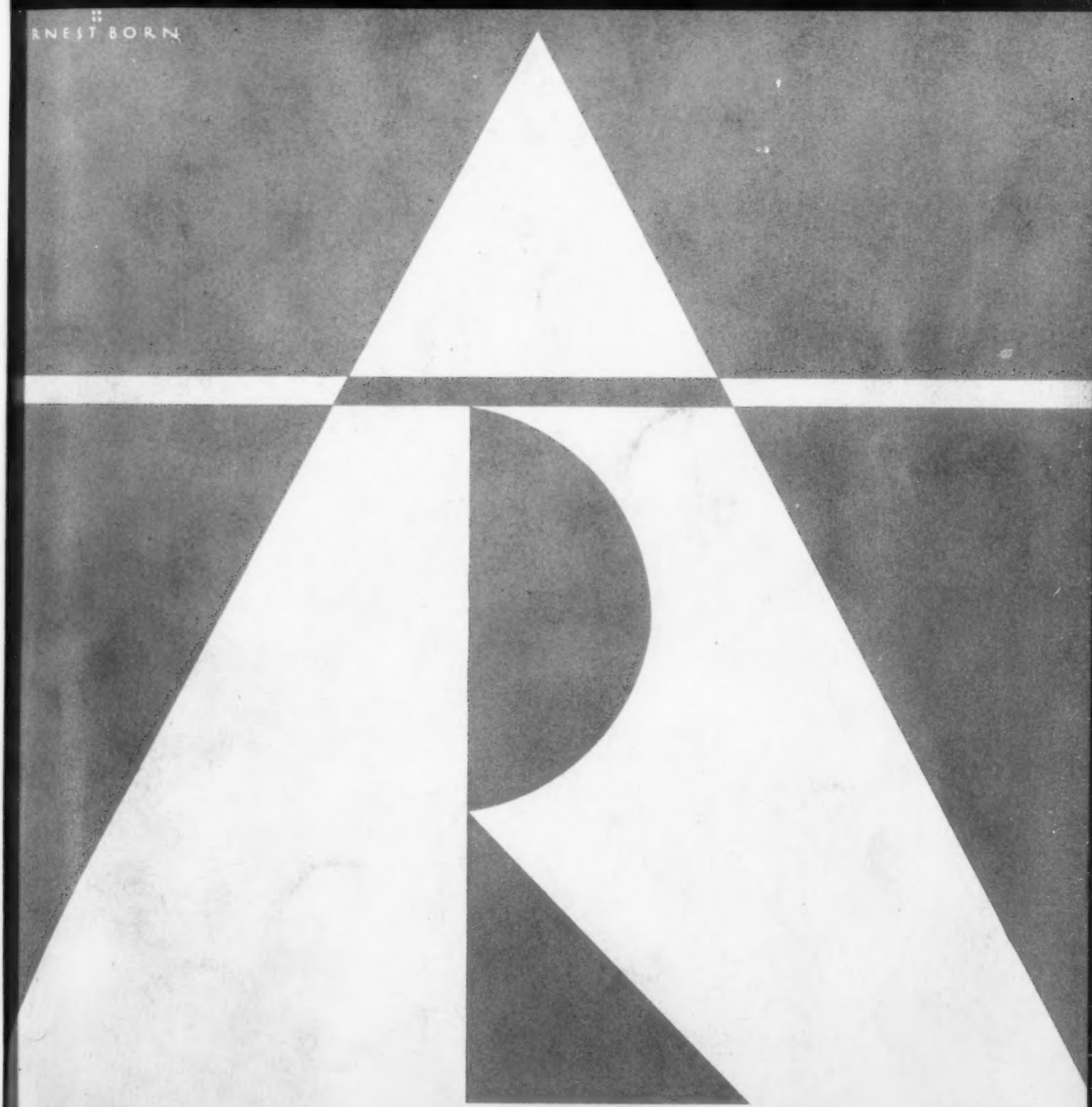
THE ARCHITECTURAL RECORD



FEBRUARY 1933

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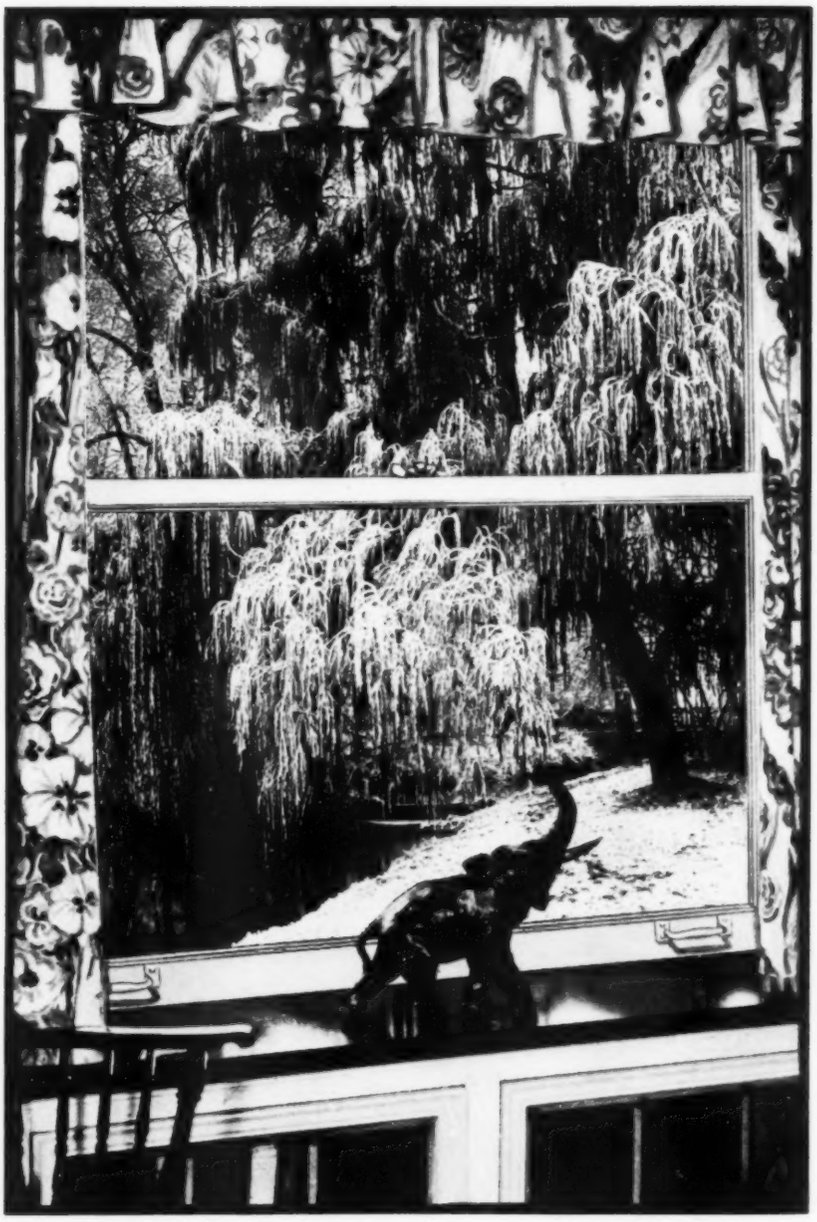
faithfully transmits Nature's true colors



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PENNVERNON
WINDOW GLASS

THE ARCHITECTURAL RECORD

VOL. 73 NO. 2 FEBRUARY, 1933

F.W. DODGE CORPORATION

Published monthly by

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New York

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Entered as second class matter May 22, 1902, at the Post Office at New York, N. Y., under the Act of March 3, 1879. Printed in U. S. A.

Modernizing with STUCCO

ABOVE: *Browning King & Co. building, Omaha, modernized by the Konkrete Exterior Co. of Omaha, with stucco made with Atlas White portland cement. At right is same building before modernizing.*

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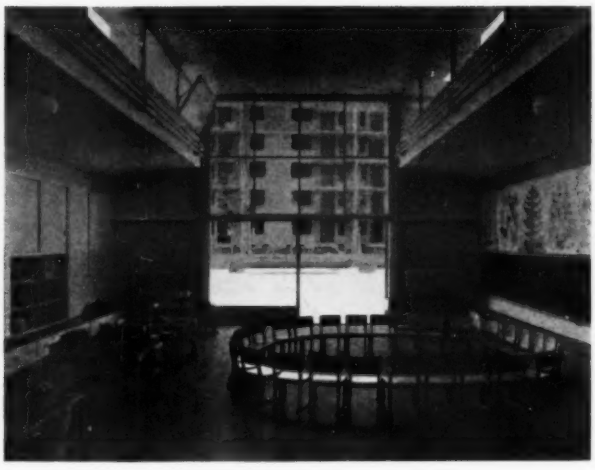


Der Baumeister

A NEW KINDERGARTEN SCHOOL IN ZURICH, SWITZERLAND — KELLERMANN AND HOFMANN, ARCHITECTS

DER NEUE SCHULBAU IM IN UND AUSLAND, GRUNDLAGEN, TECHNIK, GESTALTUNG. By Dr. Julius Vischer.

Julius Hoffman Verlag, Stuttgart, Germany.

Reviewed by HENRY R. KONRAD, *Supervising Principal of Port Carbon, Pa.*

Dr. Julius Vischer, *Schulbaurat* of Dresden, Germany, is the author of this recently published 100-page book, with many illustrations, describing the modern tendencies of school construction in Germany and other nations.

Dr. Vischer states that the development of new phases of the curriculum, especially in science and the manual arts, and the enrichment of the school program through recent inventions such as the radio and the motion picture, have had a tremendous influence on German school architecture. Furthermore, the change from the traditional teacher and text-book recitation method to a program of greater pupil activity has affected the individual classroom. A demand for greater mobility within the classroom is being met by a gradual replacement of traditional benches with tables and chairs. Great stress is being placed on improved lighting, both natural and artificial. Heating and ventilating systems are being improved. Special units are being added for the newer branches of the curriculum. So great has been the change that all types of schools—from the *Volkschule* or common school to the *Berufschule* or professional school—are included.

Even within the same type of schools, a great variety of construction is to be noted. Much of the variation is due to the difference in size of individual schools. Naturally, a small plant will include fewer special units than a larger school; in fact, in the smaller schools many special units must serve a combination of purposes.

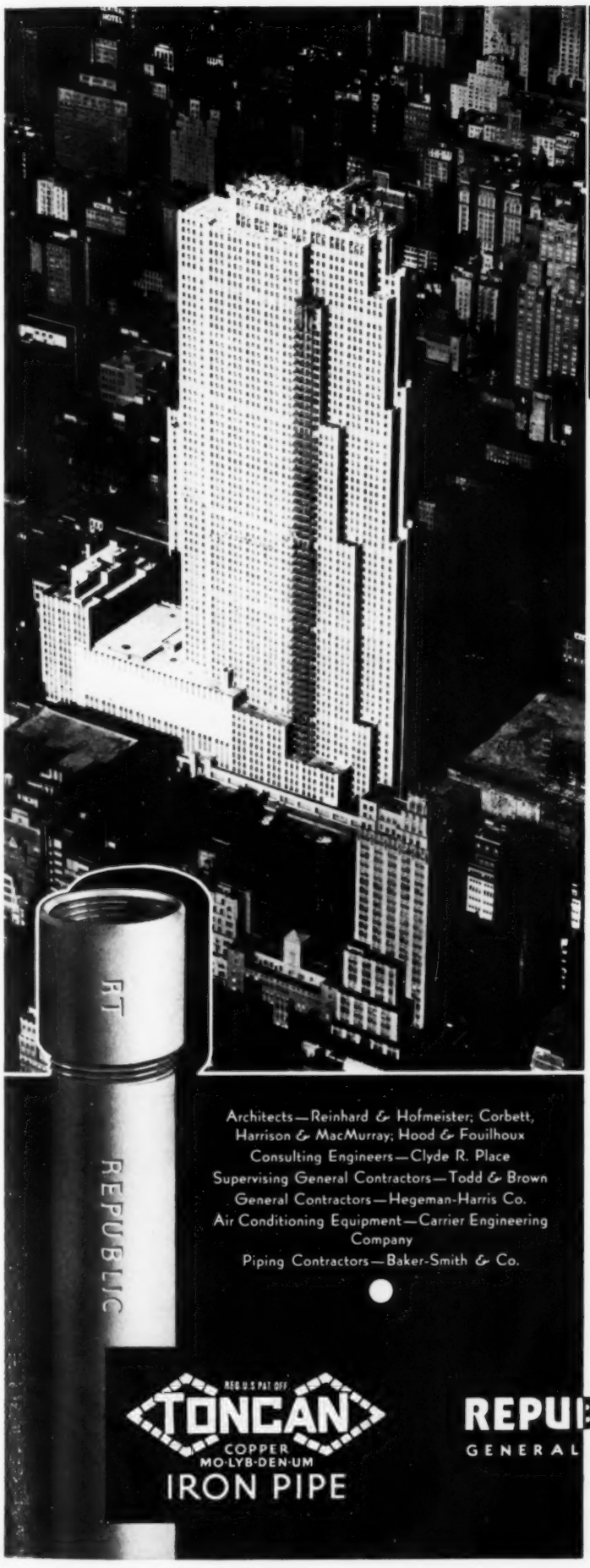
A few of the larger schools have been organized on the platoon plan, but there is a prejudice against this arrangement because of commotion caused by the periodic movement of pupils from one room to another. There is a definite conviction that the maximum school should accommodate not more than 32 sections. The higher schools devote more space to special units than does the common school. A tendency to build smaller classrooms for the eleventh, twelfth, and thirteenth grades is due to the smaller numbers in these grades because of natural mortality and greater electivity of subjects.

Within the school building there is no set rule as to the utilization of one or both sides of corridor for classrooms. There is a growing tendency towards the grouping of rooms around a central lobby. Many of the newer schools are being built on the pavilion plan.

Lack of ground space is delaying the development of one-story buildings so frequently found in England. As a rule, three stories have been set as the maximum height, but the preference is for two stories.

Where the one-story plan is in use, a school garden connects with each room. Often there is an arrangement so that in mild weather an entire wall can be opened and the garden thus becomes part of the room. The rigorous German climate makes the use of this type of school and of the pavilion school infrequent.

In a pavilion school at Frankfort three wings branch from a central hall. Advantage is taken of the natural slope to place the rooms on terraces, thus improving the lighting of the rooms despite the nearness of the wings. In the intervening spaces, individual gardens lie before the full-length windows of each classroom. At the top of the slight elevation stands a building several stories



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THEN

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In the boom-era days, when all costs were inflated and money flowed freely, "Price no object—give us the best" came to be something of a watchword. In a measure it applied to architectural specifications. Then—as now—the architect guarded his client's best interests . . . but he could afford to subordinate cost to *quality*.

1933 presents a different picture—as every architect knows. *Cost* is very likely to be considered before quality by his client. *Value* is the watchword—and that means low cost as well as *high quality*. Good plumbing—a vital item—is still easy to obtain where price is no object. It is not so easy to specify a manufacturer whose equipment combines low cost with splendid service. And that is exactly where Scovill fits into the 1933 picture.

SCOVILL

SCOVILL

high used for special rooms and administrative offices. The use of bilateral lighting and movable furniture makes possible any desired grouping of seats without impairing illumination for each individual seat.

Student homes are being added to many high schools so that pupils who reside in small communities may study at better schools than their community can establish. The contacts which these resident pupils make with their instructors during leisure hours often lead to desirable inspirations. Many of these schools are located away from the crowded city in a more healthful environment. There are two general types of pupil homes: in one a large assembly room connects with individual bedrooms; in the other a large common dormitory replaces the individual bedrooms.

A large division of the German schools is the *Berufschulen*, comparable to the American technical high schools. They are designed to care for the youths until their seventeenth year. The *Fach* and *Gewerbe Schulen* are innovations built on the *Berufschulen*; they are attended up to the twenty-second year. There is a difference of opinion as to the desirability of large schools of this type, which include training for many different callings, over smaller schools which prepare youths for one calling or for one of a small group of closely allied occupations. Special domestic arts accommodations are provided for schools admitting girls.

The trade schools, as a rule, occupy more space than the other schools. The rooms set apart for drawing are unusually large; they are frequently equipped for mechanical drawing, and because of their size are often used as an assembly room or auditorium. The most important units in these schools are the shops, many of which are equipped with the most modern machinery so that they resemble factories of the best type. Recognition is being made of the growing tendency for a change in the emphasis on the various trades by making the units of study so flexible that changes can be made in the curriculum with very little difficulty.

Great care is taken in the selection of sites for new school buildings. The elementary schools are located near the geographical center of the territory they serve and special attention is paid to the travel distances. Highly desirable is a wide open space, surrounded by lawns and connected with a playground. Most desirable is the location of the building on the site in such a manner that no part of the structure will be near a busy street with its dust and noise. In the larger cities small playgrounds are augmented by auxiliary playgrounds on the flat roofs of the schools. In many schools special provision is made for the use of school units by the community; care is taken that this use will not interfere with the proper functioning of the school.

Within individual rooms changes are taking place both in construction and in equipment. Movable furniture has brought about new fenestration. No longer is unilateral the universal lighting system. The new schools are planned with the lighting so well diffused that seats may be grouped in any

part of the room and faced in any direction without obtaining unfavorable lighting conditions. Highlights are in frequent use on two and even three walls in addition to the traditional windows. The windows are usually made in three sections. The upper or smaller section is used freely in ventilating the room while in use. The center or larger section is opened in warm weather. The lower section cannot be opened. Thus the window sill can be used as a permanent location for flowers, plants and aquaria. Since the blackboards are no longer designed for the exclusive use of the teacher, as in the past, all available space is filled with boards for the use of the pupils. Mechanical ventilation is considered very expensive, and opinion varies as to whether the results justify the additional expense. In a few schools a central fan and air ducts are used to heat and ventilate the rooms. Steam and hot-water systems are often used. The mechanical lighting of the schools utilizes modern inventions. Acoustics are improved in some units and noises deadened in others by the use of modern materials. In many schools open-air rooms are being developed for use in moderate weather. Often they are under roof so that they may be used as play spaces in rainy weather during recess periods. There is a tendency to place all classrooms on corridors leading directly to the playground so that at recess the children may get out of doors with least possible delay. Corridors are often equipped as wardrobes and some contain steel pupil lockers. The Germans take pride in the fact that few cases of thieving occur in their schools even when the corridors are used as wardrobes. Sanitary drinking fountains are placed in the corridors.

The laboratories are equipped with individual laboratory tables. Cabinets with glass doors are supplied for the storage of smaller pieces of equipment. Storage rooms are designed for the safekeeping of larger pieces of apparatus. Many laboratories are used for a combination of different science subjects and are also convertible into recitation rooms for the same subjects. The special rooms for drawing and for music are equipped in an up-to-date fashion. Sewing laboratories for girls are designed for the use of machines and for handwork. Each girl is assigned a basket in which her work is stored between sewing classes. The gymnasium is a very important unit in all schools. As the gyms are designed for instruction and for exercise, rather than the exhibition of commercialized sports, they usually lack a gallery or other spectator space. Great stress is laid on apparatus and most schools have complete equipment. Shower and locker rooms are provided. Outdoor exercise spaces are provided for mild weather, often on the flat roof of the gymnasium itself.

In the selection of school sites, care is taken that there will be ground enough to permit proper building construction and to provide for lawns, shrubbery and adequate athletic fields and playgrounds. There must also be space enough for school gardens, both the large garden for the

(Continued on page 38, advertising section)

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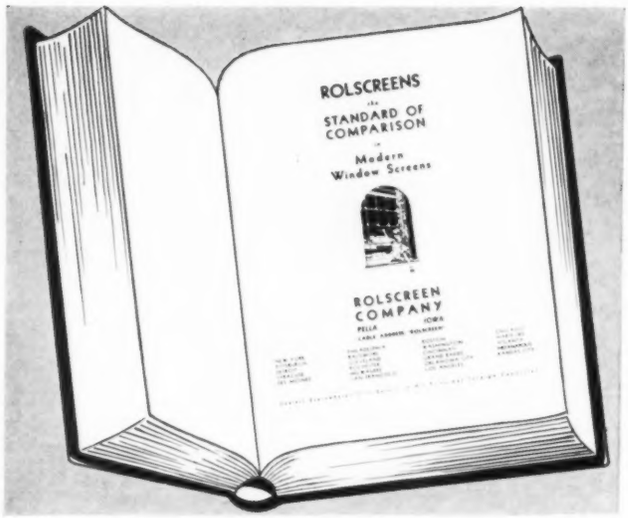
Watch for an announcement by Scovill, of interest to all those connected with the profession of architecture, in the March issue of this magazine.

SCOVILL



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"Now, what did I do with that Rolscreen catalog?" . . . We know it sometimes happens — even in the best-regulated architect's or builder's office. Of course, a wire or mail request always brings an extra copy — double-quick. But, in the meantime — SWEET'S HAS IT.

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Technical assistance cheerfully given on any specification, installation or cost-figuring problem. Rolscreen Company, 1223 Main Street, Pella, Iowa.

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ARCHITECTS' ANNOUNCEMENTS

The firm of Hall, Stromquist & Rice, architects, with offices at 175 West Jackson Boulevard, Chicago, has been formed to succeed the firm of Emery Stanford Hall, Bisbee & Rhenisch. The principals of the firm are Emery Stanford Hall, Victor H. Stromquist and Nelson P. Rice. Mr. F. Harris Wells is associated as structural engineer. The firm will carry on a general practice of architecture.

Edward F. Stevens wishes to announce that the firm of Stevens & Lee, of which he was senior partner, has been dissolved and that he will continue the practice of architecture, specializing as heretofore in the planning of medical institutions. The same staff will continue as his associates. The practice will be carried on under the name of Stevens, Curtin & Mason, 45 Newberry Street, Boston.

Alvin E. Harley and Harold S. Ellington announce the formation of the firm of Harley and Ellington, Inc., architects and engineers, 1507 Stroh Building, Detroit, Mich., for the general practice of architecture and engineering.

The Department of Architecture of Armour Institute of Technology, in preparing a permanent collection of building materials for use in the study of construction, will appreciate receiving from manufacturers samples of their standard products. Such samples should not exceed twelve inches in any dimension and should be properly labeled with full information as to the materials, gauge, etc. All samples should be addressed to the Department of Architecture, Chicago Art Institute, Michigan and Adams Streets, Chicago.

K. Martin Westerberg, architect, of 16 Norr Mälarstrand, Stockholm, Sweden, desires connection with a large architectural firm or architect of standing. Mr. Westerberg, who is consultant in the Royal Building Department of Sweden, was awarded honorable mention for his Stockholm Community House project at the Olympic Exhibition of Art held in Los Angeles, California, in 1932.

Joseph R. Fallon and E. E. Mills of Fallon and Mills, architects and engineers, announce the opening of their office at 509 First National Bank Building, Richmond, Indiana.

Award of the $1,800 Graduate Fellowship of the Columbia University School of Architecture to James A. Mitchell, a graduate of the Carnegie Institute of Technology, Pittsburgh, is announced by Dean William A. Boring of the School of

Architecture. The Fellowship is bestowed annually on the graduate student at Columbia who shows the most promise in architecture. It enables the recipient to pursue advanced studies in architecture and design at Columbia University for a year.

SECOND PHILADELPHIA INTERNATIONAL SALON OF PHOTOGRAPHY

Invitations for the Second Philadelphia International Salon of Photography have just been mailed to a list of 6,000 photographers throughout the world in some twenty-five different countries.

The jury is composed of Charles K. Archer, Joseph M. Bing, Ewing Galloway, Pirie MacDonald, and Margaret Bourke-White. All prints, including those of specially invited guests, the Museum staff, the Salon Committee and even members of the jury, must be submitted to the jury. The Museum and Salon Committee was particularly anxious to avoid a provincial Salon exhibiting only one phase of photographic art. The

(Continued on page 36, advertising section)

CALENDAR OF EXHIBITIONS AND EVENTS

February 16-18	Eleventh annual North American Conference on Church Architecture at the Stevens Hotel, Chicago. An exhibit of ecclesiastical architecture will be held under auspices of the "Christian Herald."
February 17-18	Twenty-sixth annual meeting of The Royal Architectural Institute of Canada at the King Edward Hotel, Toronto, Ontario, Canada. Alcide Chaussé, Honorary Secretary, 706 St. Gabriel Street, Montreal, Quebec, Canada.
February 18-March 11	Forty-eighth annual exhibition of The Architectural League of New York, to be held in The Fine Arts Building, 215 West 57th Street, New York City.
February 23	Educational meeting of Producers' Council Club of New York at 12:15 P.M. at The Architectural League. Carrier Engineering Corporation. Subject: "Air Conditioning."
March 1	Closing date for registration in competition for improvement of Queens Boulevard, Queens, New York. For details see January issue of The Architectural Record, pages 10-14.
March 15	Closing date of a competition in typography for an exhibition announcement. Apply to Philip Johnson, Chairman of the Department of Architecture, Museum of Modern Art, 11 West 53rd Street, New York City.
April 23-30	Better Homes week, an educational movement under auspices of Better Homes in America, 1653 Pennsylvania Avenue, Washington, D. C. Demonstrations of new and remodeled houses, lectures, contests, etc., are urged.
May 6	Opening day of the Second Philadelphia International Salon of Photography. Last day for receiving prints is April 21. Address communications to Philip N. Youtz, Curator of Exhibitions, Pennsylvania Museum of Art, Philadelphia.
June	"A Century of Progress," International Exposition at Chicago.

MODERNIZE with Acoustical Treatment

Armstrong offers a timely suggestion to architects

•

WITH new construction still below normal, where will building activity come from this year? The answer is—from remodeling—as most architects realize.

Why not combine a rebuilding program with a plan for increased efficiency? Suppose, for instance, that you are called in to remodel an office building, a hospital, or a school. You know that noise is a problem in every public and semi-public building. You can provide a solution by including plans for acoustical treatment. You eliminate unwanted noise and improve hearing conditions . . . and perform a distinct service for your clients.

When you specify Armstrong's Acoustical Products, you can work not only with efficient sound-absorbing products, but with materials that provide pleasing decorative treatment. Armstrong's Corkoustic (Types A, B, and C) is a cork product. In natural finish, Corkoustic is available in the light color of natural cork and in rich warm brown. Ceramacoustic is an inorganic material, absolutely fireproof. Both Corkoustic and Ceramacoustic are highly efficient. Both can be painted without affecting their absorption efficiency.

Bring your files up-to-date with a copy of the new A. I. A. booklet on Armstrong's Acoustical Products. Armstrong Cork & Insulation Co., 901 Concord St., Lancaster, Pa.

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A ceiling of Armstrong's Ceramacoustic quiets the swimming pool at the Sisters of Mercy Academy, Pittsburgh, Pa. Kaiser, Neal & Reid, architects.

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KATHARINE HOUSE FOR LADIES CHRISTIAN UNION, NEW YORK CITY
MORRIS AND O'CONNOR, ARCHITECTS
E. RITZEMA PERRY, ASSOCIATE ARCHITECT

HOUSING NUMBER

The March issue—usually devoted exclusively to apartments—will this year be broadened in scope to cover the wider field of housing. It will discuss row housing and individual residences as well as apartment houses. Emphasis will be laid on economical planning and low-cost construction in both the single-family and multiple-family groups. An important and exclusive feature will be the presentation of the prize-winning designs in the latest Better Homes in America Competition.

The purpose of this March Number will be to gather together for the use of architects the latest professional information on the many aspects of the housing problem. Among the features scheduled for publication are:

SLUM CLEARANCE AND HOUSING by Arthur C. Holden, architect, who has given special study to this subject. Mr. Holden outlines a method of procedure for housing developments suitable for many different localities.

PLAN EFFICIENCY by Charles H. Lench, architect and lecturer on Apartment House Design at Columbia University.

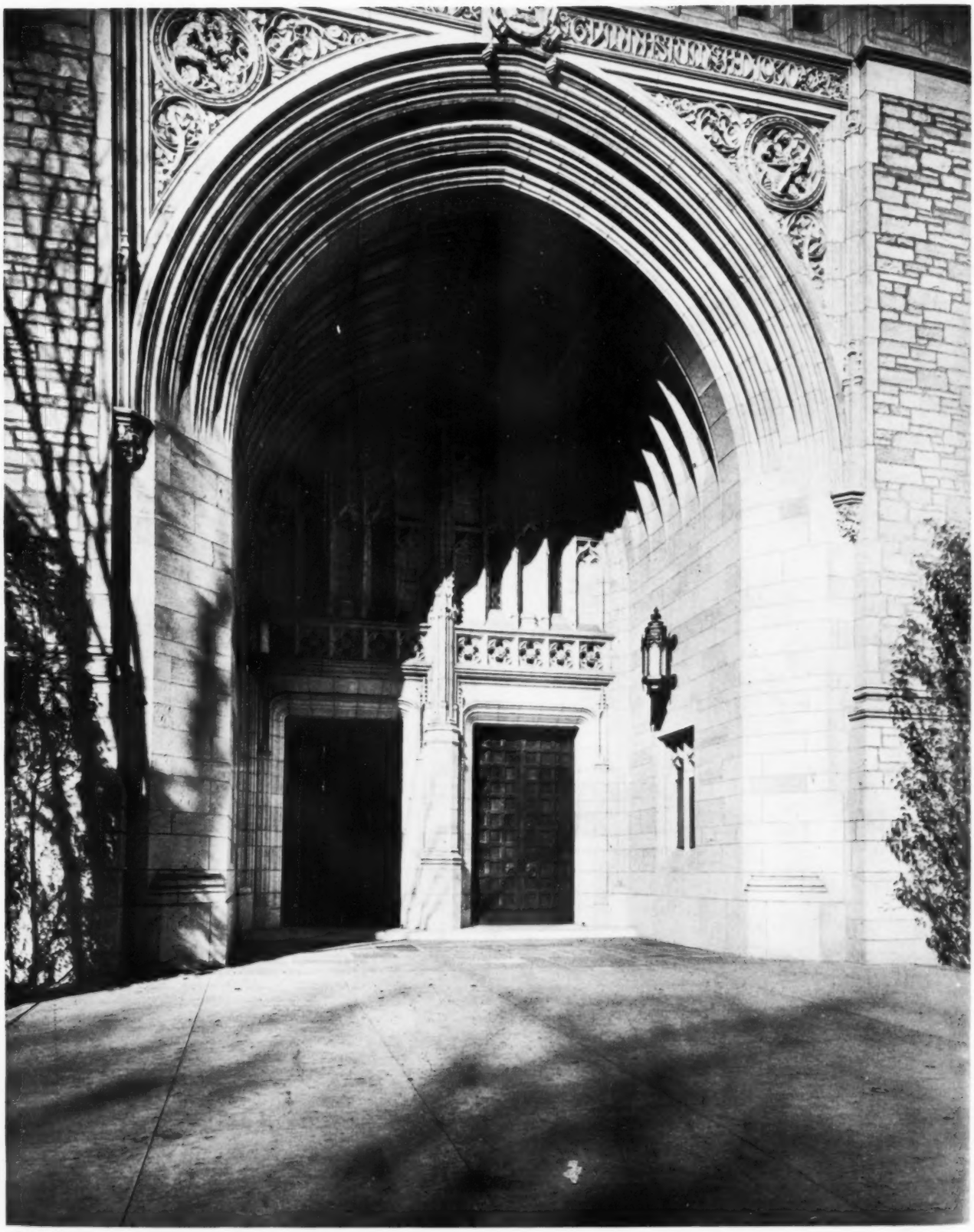
HOUSING DEVELOPMENT at Boulder City, Colo., described by S. R. DeBoer, landscape architect.

LOW-COST HOUSING for Richmond, Va., by Alfred Kastner, architect. Mr. Kastner has planned for house types—illustrated with many drawings—which can be economically built by using standard wall and other structural materials, and has anticipated savings in cost by having the owner participate in the construction of the house.

KATHERINE HOUSE, New York City, by Morris and O'Connor, architects. An apartment house designed to meet the special needs of working girls.

APARTMENT HOUSE INTERIORS by Peabody, Wilson and Brown, architects.

BETTER HOMES IN AMERICA COMPETITION. For the third successive year The Record has been selected for the announcement of the winners of the competition and the presentation of the prize-winning designs. This showing of the buildings selected as the 'best small houses in America" has become of increasing significance to architects interested in trends in house design and in improved planning. Mr. James B. Ford, Executive Director of Better Homes in America, will explain the purposes of the competition and Dwight James Baum, architect, will make a report for the Jury of Awards.



Glasgow

Main Entrance.

PAYNE WHITNEY GYMNASIUM AT YALE UNIVERSITY
JOHN RUSSELL POPE, ARCHITECT

THE ARCHITECTURAL RECORD

FEBRUARY, 1933 VOLUME 73—NUMBER 2

THE PAYNE WHITNEY GYMNASIUM AND RAY TOMPKINS HOUSE AT YALE UNIVERSITY

JOHN RUSSELL POPE, Architect

Several years before completion of the final plan of the Payne Whitney Gymnasium, it became evident that available data on gymnasiums were not adequate. With this realization the architect and Yale University sent representatives to visit important athletic buildings in the United States. Plans, working programs and equipment were studied and tabulated, and the information obtained was amplified by comparison with details of European buildings of allied character.

With this beginning, a tentative scheme was drawn up, and a series of conferences begun with the University's athletic coaches and those responsible for administration and control. Through the advice of these men, each with years of experience in his particular department, the scheme was improved, modified and coordinated.

The plans were developed slowly and subjected to criticism and study, and many customary provisions were found inadequate or superfluous during this procedure. Materials and finishes were checked as well as arrangements, and experiments were conducted in the field to determine the merits of those considered.

In the final solution three main physical divisions are expressed in the exterior design. These correspond with actual divisions in the activities housed. The central or tower unit contains the "working departments," general locker rooms and general control. The right wing is an amphitheatre unit for exhibition floor games, and the left wing is an exhibition swimming pool. Each of these exhibition units is self-contained with complete dressing rooms, showers, and toilets for home and visiting teams. For purposes of control, entrances to each unit are through the main tower section. Public ticket offices, telephones and check rooms are also located there.

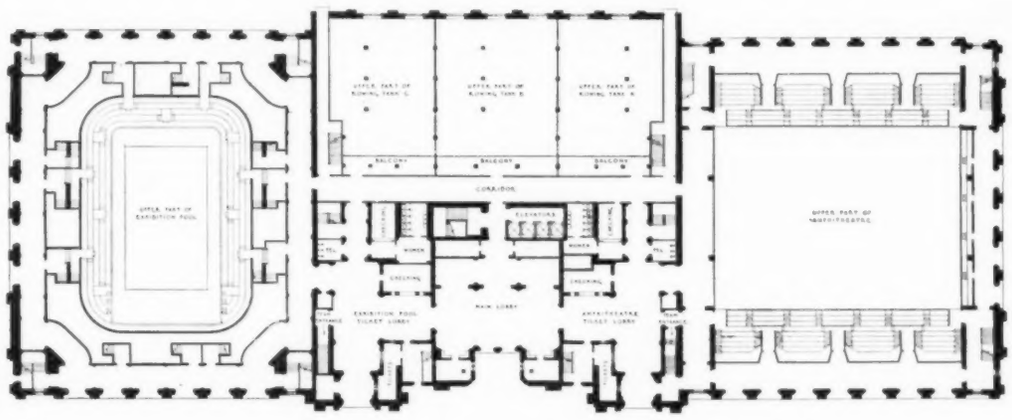
Study has been given to the problem of keeping spectators and casual visitors off "working floors." Spectators' galleries overlook all the more important activities and these may be entered only from balcony levels spaced between working floors. Visitors are taken direct to the balcony level by elevator or public stair. They are free to go back and forth between the stair and the various balconies but they cannot go from the stair to any working floor without a key. Authorized persons may enter any working floor by elevator under control of the elevator operator. (The fifth floor and floors below can be entered by an inside stair under control of the manager's office on the second floor.) They can also exit into the public stair from any floor by means of one-way operating hardware on the stair door. Other stairs required as legal exits are similarly equipped with doors and hardware which permit entry into the stair from every floor and exit to the street but no re-entry from the stair.

A bank of four elevators is provided in the main tower. These serve all floors from the basement to the eighth balcony inclusive and one of them is also designed to serve the sub-basement. Each elevator has a net carrying capacity of 2,500 lbs. at a speed of 500 feet a minute and is equipped with an automatic self-leveling device.

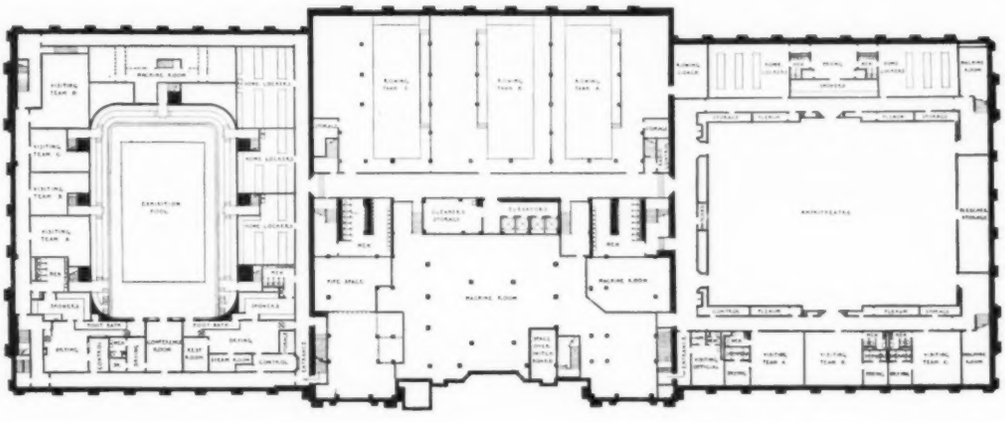
The Tower Unit

The first floor is given over to circulation, information and control, public conveniences and, at the rear, balconies overlooking the three rowing tanks.

These *rowing tanks,* located at the basement level, are a unique feature. Each consists of a specially constructed boat fixed between two channels of moving water. In inside dimensions, oar positions and similar arrangements the boats correspond to regular full-sized eight-oar shells and the water channels are wide enough to permit a full sweep of the oars. Water flows past the boats at varying optional speeds equivalent to the boats' progress under normal rowing conditions. Continuous flumes below and parallel to the channels return the water to the pumps whence it is given a new impulse. By means of head and foot tanks and an arrangement of baffles, eddying and wave



FIRST FLOOR PLAN



BASEMENT PLAN

SUB-BASEMENT PLAN

PAYNE WHITNEY GYMNASIUM AT YALE UNIVERSITY
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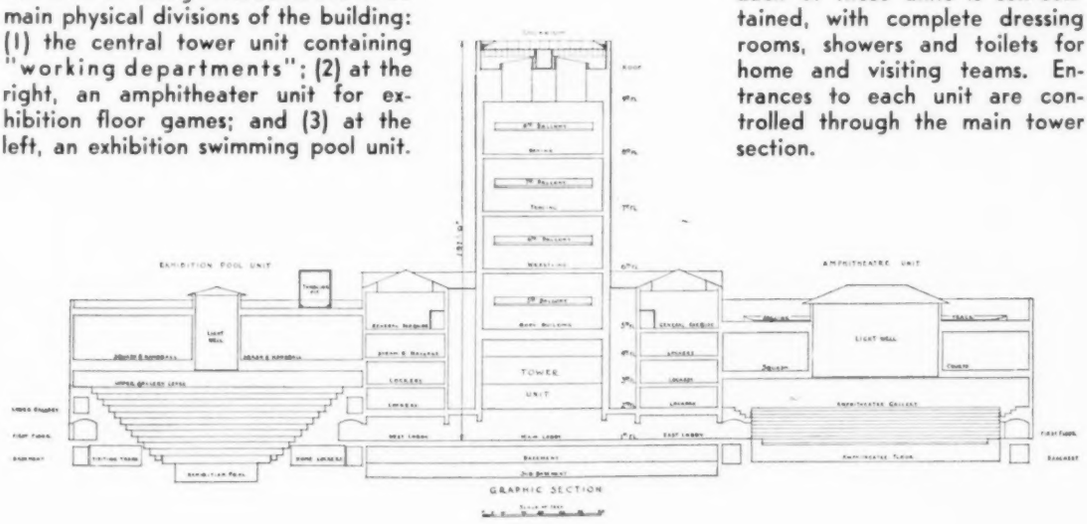
General View.

The exterior design indicates the three main physical divisions of the building: (1) the central tower unit containing "working departments"; (2) at the right, an amphitheater unit for exhibition floor games; and (3) at the left, an exhibition swimming pool unit.

Each of these units is self-contained, with complete dressing rooms, showers and toilets for home and visiting teams. Entrances to each unit are controlled through the main tower section.



PAYNE WHITNEY GYMNASIUM AT YALE UNIVERSITY
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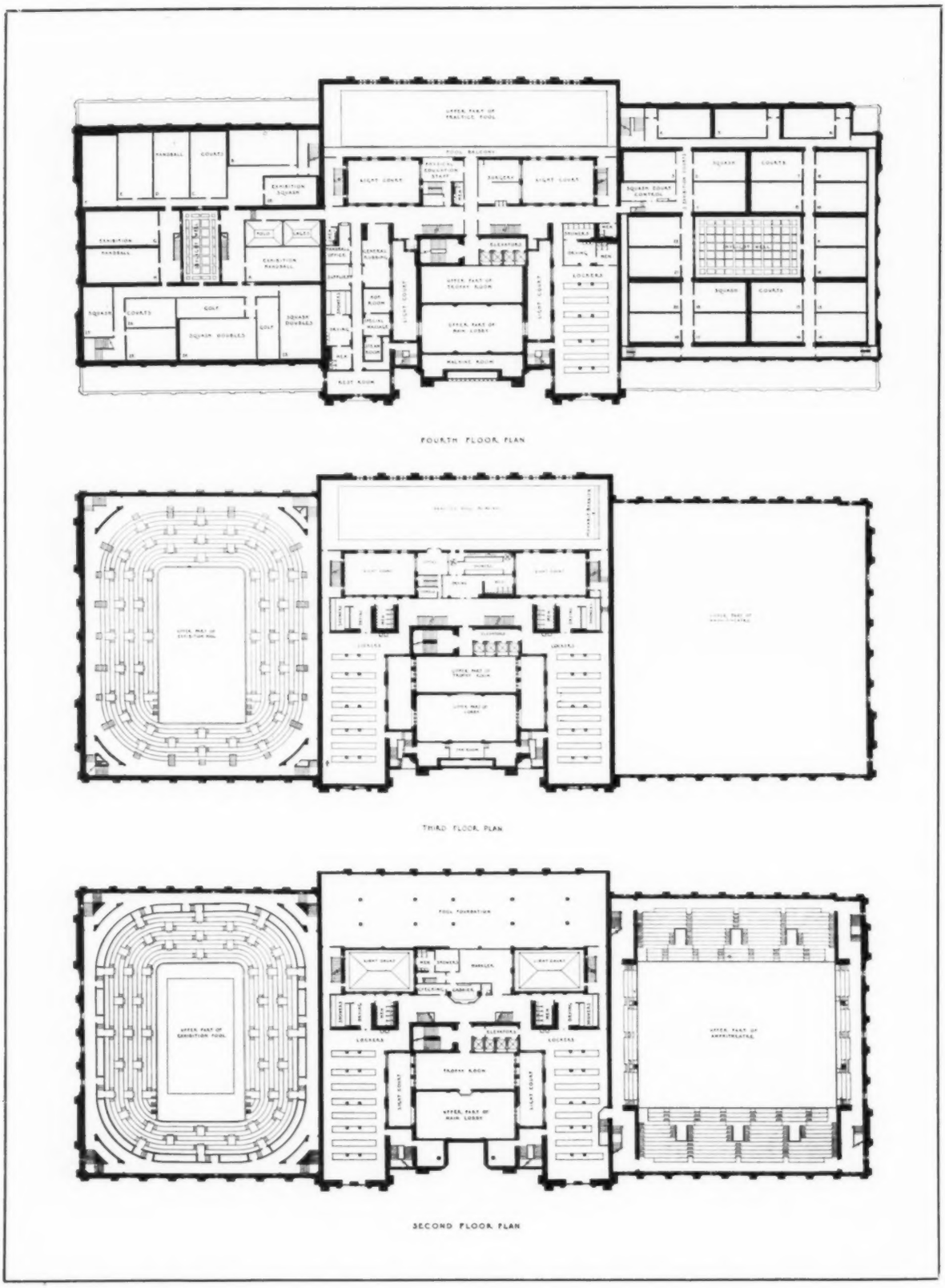

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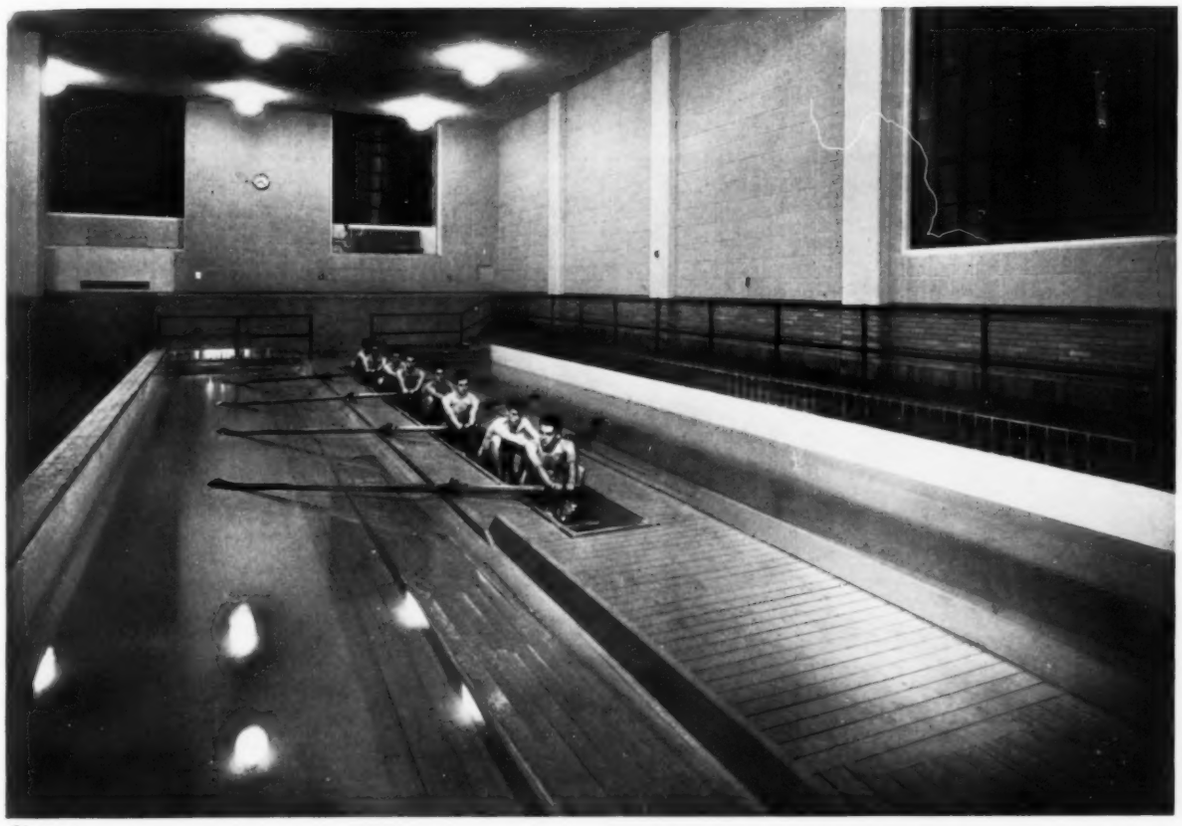


Glasgow

One of the rowing tanks used for crew practice.

PAYNE WHITNEY GYMNASIUM — JOHN RUSSELL POPE, ARCHITECT

action are reduced to a minimum. Two pumps operating in parallel are used in each tank. These are of the axial flow type with 41½" diameter bronze impellers, cast-iron casings and stainless steel shafts. They are electrically driven by individual low-speed direct connected motors operating on 220-volts direct current. Full control of the apparatus is maintained from a simple switchboard on the boat level operated by the rowing coach. Mechanical rowing machines of regular type are also provided on the floor alongside the tanks. An office for the coach is located adjacent to the rowing rooms.

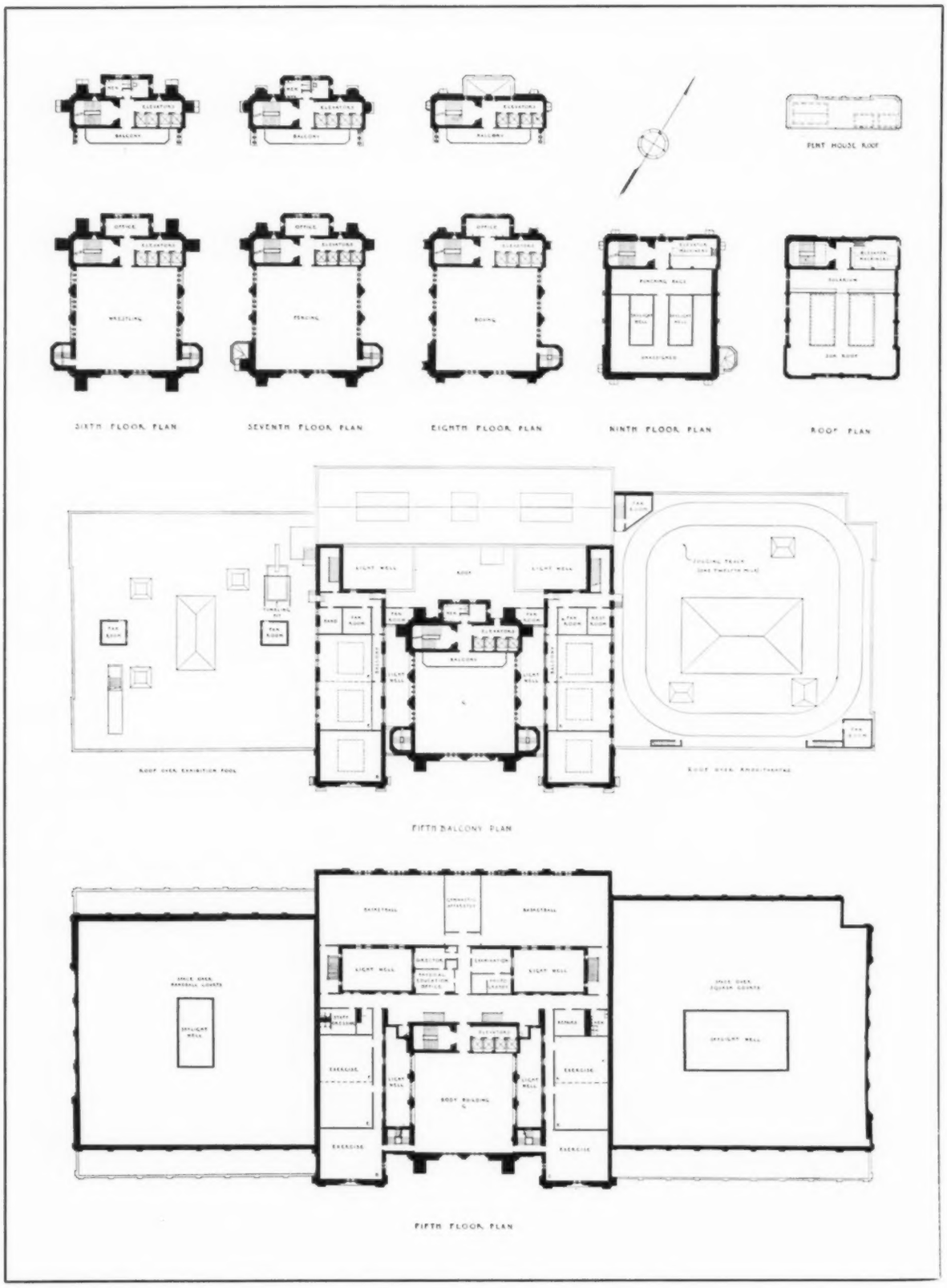
The remainder of the basement and the subbasement is occupied by mechanical equipment, laundry and service areas and a rifle and pistol range.

A directory and information desk is located on the first floor in the main lobby facing the entrance, but *general control* and distribution of students taking part in activities is from the second floor. The building manager's office is located here and in conjunction with it, a cashier's office and check room for valuables. Lockers are distributed from the cashier's office and two of the four general locker rooms are adjacent. Two similar locker rooms are on the next floor above, while special lockers for faculty, staff and team use are located elsewhere.

The *four general locker rooms* contain 2,632 lockers. They are arranged in double tiers and double rows with an 8" space between backs serving as a ventilating chamber. This is connected by ducts to an exhaust fan system and the air from the locker room is continually drawn through the lockers by means of louvers in the doors and the backs. Fresh air is supplied to the locker rooms through a system of supply ducts and registers in the exterior walls. This arrangement assures positive and economical ventilation of the lockers and contents as well as of the room.

Each locker is 15" x 18" x 42", constructed of pressed steel with baked enamel finish. Doors are full height and locks are combination type with emergency master key control. In each locker is provided one wire shelf arranged to allow full height hanging space in front of it. Space between lockers and ceiling is inclosed with steel facia plates.

Each locker room has a self-contained *shower and toilet group* which is also accessible from the outside corridor. The shower rooms contain 12 shower heads spaced 3 feet on centers and projected 3 feet from the wall each with ½" inlet connection and 5" diameter face. Control is by individual mixing valves easily accessible and outside the path of the spray. No partitions are provided at individual showers but the shower



PAYNE WHITNEY GYMNASIUM AT YALE UNIVERSITY
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rooms are completely inclosed and separated from the adjoining services by Monel metal doors. Each toilet room in these groups contains six urinals, four water closets and two lavatories; in addition, two lavatories and a drinking fountain are located in the locker room outside. Between each shower room and toilet room is a drying room about 20 feet long by 14 feet wide.

Walls in toilets and drying room have 6-foot wainscots of 4¼" square matt glazed tile, light cream in color. Walls in shower rooms have 7½-foot wainscots of light gray marble. Floors in all three rooms are finished with 1" square white ceramic tiles. All exposed metalwork on grilles, plumbing fixtures and door hardware is chromium-plated. In the locker rooms, floors are 6" square red brown quarry tile and walls have 6-foot buff brick wainscots.

The *trophy room* also is on the second floor. It forms a mezzanine overlooking the rear of the main lobby and is approximately 23 feet wide by 62 feet long. Continuous carved oak display cases 18 inches deep and inclosed with sliding glass doors form an 8-foot wainscot around the room.

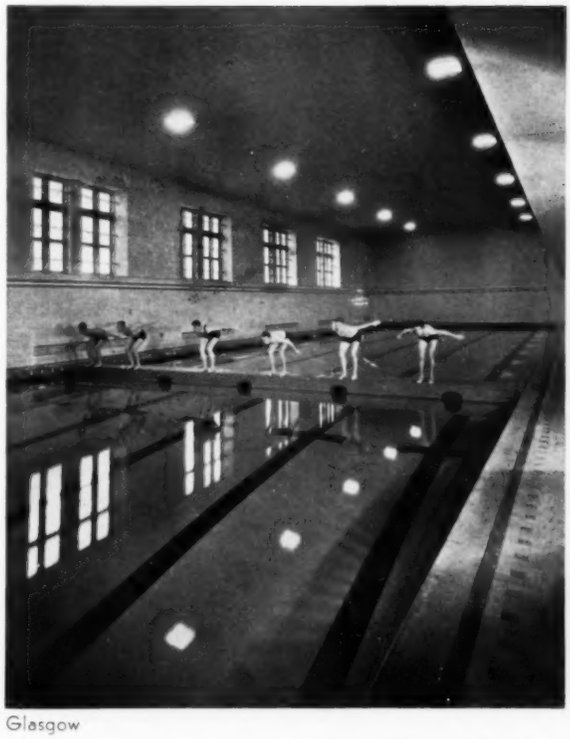
Trophies are illuminated by concealed lighting.

The *practice swimming pool* is at the third-floor level. This pool is intended primarily for practice and recreational swimming, and exhibition meets are held elsewhere. The pool is 167 feet long, 35 feet wide and has a maximum depth of 11½ feet. Gutters controlling overflow and wave action are located on the sides and are arranged in double tier. The maximum depth is obtained by maintaining the water at the level of the upper gutter. A minimum depth of 4 feet at the shallow end is obtained by lowering the water one foot to the level of the lower gutter.

The lip of this lower gutter is made of a stainless white metal alloy and is designed to serve as a track which supports and guides a stainless steel bulkhead or dividing partition spanning the width of the pool. The bulkhead is about 5 feet deep and the top, 2 feet wide, is level with the walkway around the pool. An anchoring device permits fixing the bulkhead either at one end, allowing an unobstructed pool 165 feet long, or at intermediate position of 50 meters, 25 meters, 75 feet and 60 feet. It is customarily anchored 75 feet from the deep end providing a standard length pool for advanced classes and water polo, and a beginners' pool at the shallow end. The metal surfaces of the bulkhead are sandblasted and painted to match the tile of the pool.

The pool itself is finished in ¾" square white ceramic tile with green trim and black and white markings. Lane markers on the bottom are black lines 1 foot wide, 7 feet on centers, and so placed that the swimmer swims on the line. After experiments with several colors black was chosen for highest underwater visibility. At the ends of the pool and on the faces of the bulkhead vertical black markers corresponding with the lanes form turning points.

Trophy Room.



Glasgow

Swimmers on the movable bulkhead in the Practice Swimming Pool.

PAYNE WHITNEY GYMNASIUM
YALE UNIVERSITY—NEW HAVEN, CONNECTICUT
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The pool room is approximately 46 feet wide, 180 feet long and 22 feet high, with a visitors' balcony extending the full length of one side. The deck surrounding the pool is floored with 3″ square and 3″ x 6″ ceramic tiles, in two shades of soft green laid in a simple geometric pattern. It is pitched away from the edge of the water making a curb unnecessary, and drains to a small continuous tile gutter against the base of the wall. Walls for a height of 8 feet above the floor are faced with ivory-colored Vitrolite in 18″ squares. Upper walls and ceiling are finished in acoustic plaster to reduce sound reverberation.

Windows occur in the two long sides of the room and may be used for ventilation in favorable weather. They are equipped with double sash and double glazing in order to minimize condensation and air leakage during cold periods, and at such times a complete mechanical ventilation system is available for use. A series of built-in radiators and unit ventilators concealed in one exterior wall provide heat and tempered fresh air. Fan exhausts in the opposite wall insure circulation. The supply of heat is under thermostatic control and the unit ventilators have a recirculating feature making it possible to raise the room temperature very rapidly when desired.

Lighting is by flush type directional units located in the ceiling and the balcony, and by underwater lights in the pool. These systems are independently adequate or may be used in combination. Underwater lights are bull's-eye type, water cooled, arranged and grouped to give uniform illumination by stagger spacing on opposite sides and by a definite progression in vertical and horizontal centering between the deep and the shallow water. Upward glare, disturbing alike to swimmers and spectators is controlled and minimized by means of concealed directional louvers behind the lenses.

There are two 1-meter and one 3-meter diving boards located at the deep end of the pool. Frames are of white brass, chromium-plated, equipped with adjustable fulcrum feature and recoil spring attachment. Other special equipment includes removable stainless steel starting platforms for racing take-offs, built-in sockets for water polo goals and floating lane markers, marble benches for bathers, and a glass bay for observation projected onto the pool deck from the coaches' adjoining office.

The bathers' entrance to the pool is also under observation from the coaches' office. Entrance is along a one-way traffic lane controlled by directional turnstiles, leading first through the shower room and next through a specially designed crotch spray which is automatically released by a flush valve connected to the entrance turnstile. On leaving the pool, an exit turnstile prevents short circuiting and registers the number of persons passing through. A drying room and toilet complete the pool services. Plumbing fixtures and arrangements are similar to those described in the locker room sections, and all exposed metalwork in connection with the pool and services, including doors, trim, partition sash, control windows, turnstiles, railings and hardware, are stainless steel, Monel, white metal or chromium-plated brass.

The entrance to the practice pool balcony is on the fourth floor; in addition, the surgery, staff conference room, steam and hot rooms and faculty lockers are located there.

The *faculty locker room* is similar in size and services to the typical locker groups except that lockers are 15″ x 18″ x 72″ in single tier. There are 296 lockers and toilet and shower facilities are proportional.

The *steam and hot room group* consists of a general rubbing room, hot room, special massage room, steam room, rest room, toilets, showers and drying room. The steam and hot rooms are tiled throughout on floors, walls and ceilings and specially insulated against heat loss and condensation. Rubbing slabs and benches are of marble.

Entrances to *squash, handball, golf and polo departments* are from the fourth floor of the tower building, but these spaces, which are controlled from two offices, are located over the amphitheater and exhibition pool units in order to utilize roof space between the deep structural trusses spanning the large unobstructed open areas below. There are 28 squash courts (two arranged for doubles play), 8 handball courts, 2 polo practice cages and 2 golf galleries. Floors and walls of squash courts are finished in maple. In dimensions and arrangements they meet the new standard requirements of the United States Squash Racquets Association and the National Squash Tennis Association. In the handball courts floors are maple and walls are cement plaster. Polo cages have dished maple floors and padded walls and are equipped with full-sized dummy horses on grass mats. Golf galleries have suspended canvas driving nets; floors are asphalt planking with grass mat inserts at tees, and walls are cement plaster. Mechanical ventilation is provided in all of these spaces. Lighting is by diffusing plate units flush with the ceilings.

Spectators' galleries overlook 5 squash courts, 3 handball courts and 1 polo cage. These are accessible by direct stair from the corridors at the court level.

The fifth floor contains the body building department and two practice basketball courts.

The *body building group* consists of a large room 62 feet by 64 feet by 27 feet high equipped for general exercise, seven smaller rooms for corrective exercises and special classes, a room for physical examinations and photography with dark room and print room attached, and office for files and records, a private office for the director in charge, and a staff dressing room with lockers, showers, and toilet. All exercise rooms have 2½″ face maple floors laid on diagonal plank underflooring. Floors are free from the walls to allow for expansion and contraction and the joint is concealed by a 2″ x 3″ angle iron base. Surfaces

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View of Amphitheater showing canvasses laid for tennis.

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are treated with linseed oil and turpentine to fill the wood and facilitate cleaning, but no other finish is applied. Walls are cement plaster and ceilings are acoustic plaster.

Two pairs of the corrective exercise rooms have folding wood partitions which may be concealed in wall pockets when a large unobstructed floor space is required, and these rooms, together with the main body building room, are overlooked by visitors' balconies accessible from a mezzanine level.

This same mezzanine gives access to the flat tiled roofs of the exhibition pool and amphitheater units, which have been utilized, the former for tumbling apparatus and the latter for an outdoor jogging track. The jogging track is one-twelfth mile long, banked on the turns and surfaced with asphalt bridge planking.

The sixth, seventh and eighth floors contain respectively the *wrestling, fencing and boxing departments*. Each consists of a large room, similar in dimensions and general finish to the body building room, and an office for the coach. Balconies overlook each large room and toilets are placed at the balcony levels. Above the boxing room, at the ninth floor, a separate room is provided for pneumatic punching bags, and is insulated to reduce transmission of noise to spaces below and above.

On the roof of the tower is a *solarium*, 15 feet wide and 65 feet long, inclosed in Vitaglass. The solarium occupies about one quarter of the free roof space. The remainder, which is tiled and screened from view by a parapet, is available as an outdoor sun-deck.

The Amphitheater Unit

The amphitheater, designed for exhibition games of basketball, tennis, boxing, fencing and wrestling, has permanent seating for 1,600 spectators. Seats are individual wood theater-chair type with back and arms. They are placed on concrete risers, each row approximately 20 inches above the one below. A special section of 8 seats is reserved for the Press and is equipped with folding desks and a telephone. The lowest seat bank is about 8½ feet above the playing floor which is at the basement level.

Portals serving the two main seat banks give access midway up the bank and open directly into wide circulating corridors at the first-floor level. An abundance of doors equipped with panic-bolt hardware permit ready exit from these corridors to the outside on three sides of the building. Entrance to these corridors, as previously described,

is through the main tower section. Entrance to and exit from the two upper balconies in the amphitheater are by stairs at the four corners of the circulating corridors.

The *amphitheater floor* is 95 feet by 125 feet. As this floor is laid on earth special precautions were taken against dampness. A 3″ stone concrete sub-slab rests on the earth; above this is continuous membrane waterproofing and a 5″ reinforced stone concrete structural slab. Four inches of stone concrete fill serve as anchorage for the sleepers which are chestnut, 2″ x 3″, beveled, and these in turn carry a 1¾″ fir underfloor laid diagonally, a layer of building paper, and a 2½″ x 13/16″ matched maple finished floor laid in the long direction of the room. The wood flooring is kept free of the walls to allow room for expansion, and a 2″ x 3″ angle iron base conceals the joint. The floor is finished with linseed oil and turpentine and underfloor and sleepers are treated with creosote preservative.

Three basketball courts are laid out on the floor. One of these is the maximum size, 50 feet by 94 feet, and runs in the longitudinal direction of the room. The other two are standard, 48 feet by 89 feet, and run side by side transversely. All three have specially designed backstop supports which collapse against the wall when not in use and leave the entire floor free for other purposes.

Sockets are provided in the floor for portable boxing ring standards and for tennis net standards. When tennis is played, four sections of canvas coverings are laid and these contain the marking for two full-size doubles courts side by side. Canvas, tennis nets, standards and other equipment are stored, when not in use, in a room provided for the purpose and opening directly on the floor.

Players' accommodations are all at the same level as the playing floor, and a separate stair provides entrance to this section. It is controlled by an attendants' office with checking facilities for valuables at the bottom. Separate dressing rooms are provided for home and visiting teams on opposite sides of the floor. The home team accommodation consists of two locker rooms with a total of 192 lockers, each 15″ x 18″ x 72″, vented and equipped in the same manner as those described in other sections. Between the locker rooms is a typical unit of toilets, showers and drying room. Visiting teams are provided with three dressing rooms and a visiting officials' room, all complete with toilets, showers and drying rooms.

Each team has also a "dugout," one on either side of the amphitheater floor, commanding a view of it, and equipped with players' benches. The home team dugout has a telephone for communication with the electrical switchboard room or with the press section, and a control panel operating the two synchronized electric scoreboards which record, for the spectators, the official scores as the games proceed. The scoreboards are suspended from the soffits of the two end balconies.

Illumination. The amphitheater is daylighted by a large skylight directly over the playing floor, and at night is illuminated by flush type fixtures with diffusing lenses inserted in the ceiling and above the skylight. Four high-power fixtures similar to those used in professional matches are provided for boxing bouts. These are arranged to be raised or lowered electrically through the skylight directly above the boxing ring. All electric units are operated by remote control from a switchboard room overlooking the playing floor.

Heating. The amphitheater is heated and ventilated by tempered fresh air introduced under pressure through four louvered grilles in the parapet surrounding the playing floor and through hood deflectors under individual seats in the spectators' section. Air is drawn off through the skylight and discharged above the roof. A recirculating by-pass on the supply system allows air to be recirculated just above the playing area when required.

The architectural treatment of the room is simple and direct and the materials and finishes have been chosen for permanence and efficiency. The parapet around the playing floor is cement plaster with a stone coping. Doors and trim are hollow steel and upper walls and ceiling are acoustic plaster. The seating banks are poured concrete.

The Exhibition Swimming Pool Unit

The exhibition pool has permanent seating for 2,187 spectators. Seats are of the same type as in the amphitheater but as the area under observation is smaller and the number of seats greater than in the amphitheater, the problem of providing perfect visibility from all points required special consideration. The final solution, after many experiments and the construction of several accurate scale models, consists of an oval system of concrete seat banks concentric with the pool and rising at an angle of 45 degrees from a point about 6½ feet above the pool deck which is at the basement level. Each seat bank has a uniform rise and width of 3 feet. Portals serving the seats occur at four levels on the bank and repeat around the circumference at symmetrical intervals. They are connected by a series of stairs to a main corridor on the first floor, with entrance and exit similar to the arrangements described for the amphitheater.

The *pool* is 75 feet long and 42 feet wide, providing six 7-foot lanes, and ranges in depth from 7 feet to 12 feet 8 inches. It is tiled and finished in the same manner as the practice pool, and the 6½-foot parapet surrounding it is faced with Vitrolite and capped with stainless steel. Deck tile, markings, marble benches, starting platforms, and built-in accessories are identical with those in the practice pool in all details except that there are no ladders, no second gutter and no dividing bulkheads.

Four diving boards are provided. Three of these are on 1-meter frames and one on a 3-meter frame; all are removable and anchorages are so

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Exhibition Swimming Pool as seen from the top seat bank.

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arranged that three low boards or one high and two low boards may be set up at one time.

At the deep end of the pool an officials' room overlooks the deck through glazed windows and has direct access to it and to the swimmers' accommodations adjoining.

Swimmers have access to the pool unit through a stair leading from the first floor of the tower section past an attendants' office and checkroom. As in the amphitheater, home and visiting teams have separate *dressing rooms and accommodations*. Three locker rooms are provided for the home team with a total of 310 lockers and a bank of showers, toilets, drying room, steam room and rest room. Entrance to and exit from the pool are under observation of the control room and proper routing is assured by means of one-way turnstiles. Entrance is always through the showers and through a chlorinated footbath. Exit is directly to the drying room. There are four dressing rooms for visiting teams and a second system of toilets, showers, drying room, foot bath and control room with routing similarly arranged by turnstiles.

Lighting in the pool room is by skylight or by electrical units similar to those in the amphitheater and, in addition, by underwater lights in the pool identical with those in the practice pool. Control of all lighting units is from the officials' room overlooking the deck; control of two electric scoreboards is also from this location.

Ventilation. Fresh air is introduced through openings with louvered deflectors just above the pool deck. By thermostatic control the temperature at this level is maintained at 80 degrees. Air is drawn off through the skylight directly above, and cooler air is supplied to the spectators' section through hood deflector units under the seats.

Architectural treatment and materials and finishes are similar to the amphitheater except that all doors and trim and other exposed metalwork at the pool level are Monel metal, stainless steel, or chromium-plated brass. Doors to portals from seating banks are flush birch veneer.

Construction

The construction of the building is fireproof throughout. The skeleton is structural steel carried on footings and foundations of reinforced stone concrete. Basement floor slabs and exterior walls below grade are reinforced stone concrete, and floor arches and roof slabs are short-span cinder concrete on mesh reinforcing. Ex-

Stairway in Ray Tompkins House.

terior walls above grade are Briar Hill stone ashlar backed with common brick, and all cut stone at openings, washes, hand courses, parapets and ornamental features, is Briar Hill. Lead-coated copper is used for gutters and flashings and for covering on sloping roofs, penthouses and inner facings of parapet walls. Flat roofs are covered with 6" x 9" promenade tile. Exterior doors are oak.

Both swimming pools are of reinforced stone-concrete construction. The exhibition pool resting as it does directly on earth presented no unusual problems, but the long practice pool containing some three hundred and thirty odd thousand gallons of water as well as the weight of the concrete shell and the tile finish had to be carried entirely on steel three stories above the ground. The tremendous dead load represented in this unit is supported by deep plate girders at the second-floor level, and concrete dwarf walls forming a cradle above this point. The spaces between the dwarf walls are lined with copper and drained in order to carry off water and protect the rooms below if a leak should develop at any time. The pool shell is 8 inches thick with vertical and horizontal rod reinforcing. It was poured in three operations, the last pour closing a 3-foot wide construction joint left to divide the mass transversely at the center point and to allow initial set and shrinkage

Glasgow

View of Lounge.

RAY TOMPKINS HOUSE AT YALE UNIVERSITY
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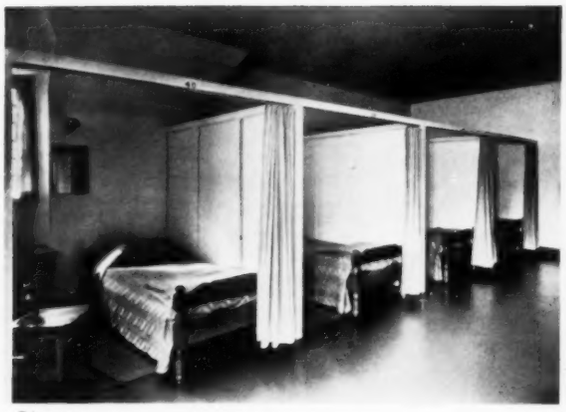


Glasgow

Visiting Team Dormitories.

View in the Lounge.

RAY TOMPKINS HOUSE—JOHN RUSSELL POPE, ARCHITECT

to take place before the two halves were joined. When the concrete had cured, an ironite waterproofing skim coat was applied over the inside surface and a thick coating of ironite and cement grout was used as a tile setting bed. Underwater lights, drains, supply pipes and built-in fixtures were in place when the concrete was poured. The method of construction has proven itself successful and it is believed that the concrete shell offers distinct advantages in permanence and stability over a steel tank.

Interior finish has been selected with the aim of minimizing maintenance and replacements. Floors in most corridors, halls and passages are quarry tile; bases are salt glazed brick; wainscots, 6 feet high, are smooth-faced buff brick. Doors and trim excepting certain wood doors in special rooms are Monel metal, stainless steel, or hollow steel with baked enamel finish. Window sash are steel, generally top hinged and projecting out. Stairs are steel with soapstone treads and landings; the main stair is concrete with granite treads.

In the entrance lobbies of the tower section floors are blue stone flagging and trim and lower walls are cut Briar Hill stone. Upper walls and vaulted ceilings are acoustic plaster.

The three units of the gymnasium have a frontage of 510 feet on Tower Parkway and a depth of 206 feet. The tower is 200 feet high. In keeping with the general architectural scheme of the University and with the particular form and mass dictated by the relationship between the services required, the building has been designed in a modified form of English Gothic architecture.

RAY TOMPKINS HOUSE

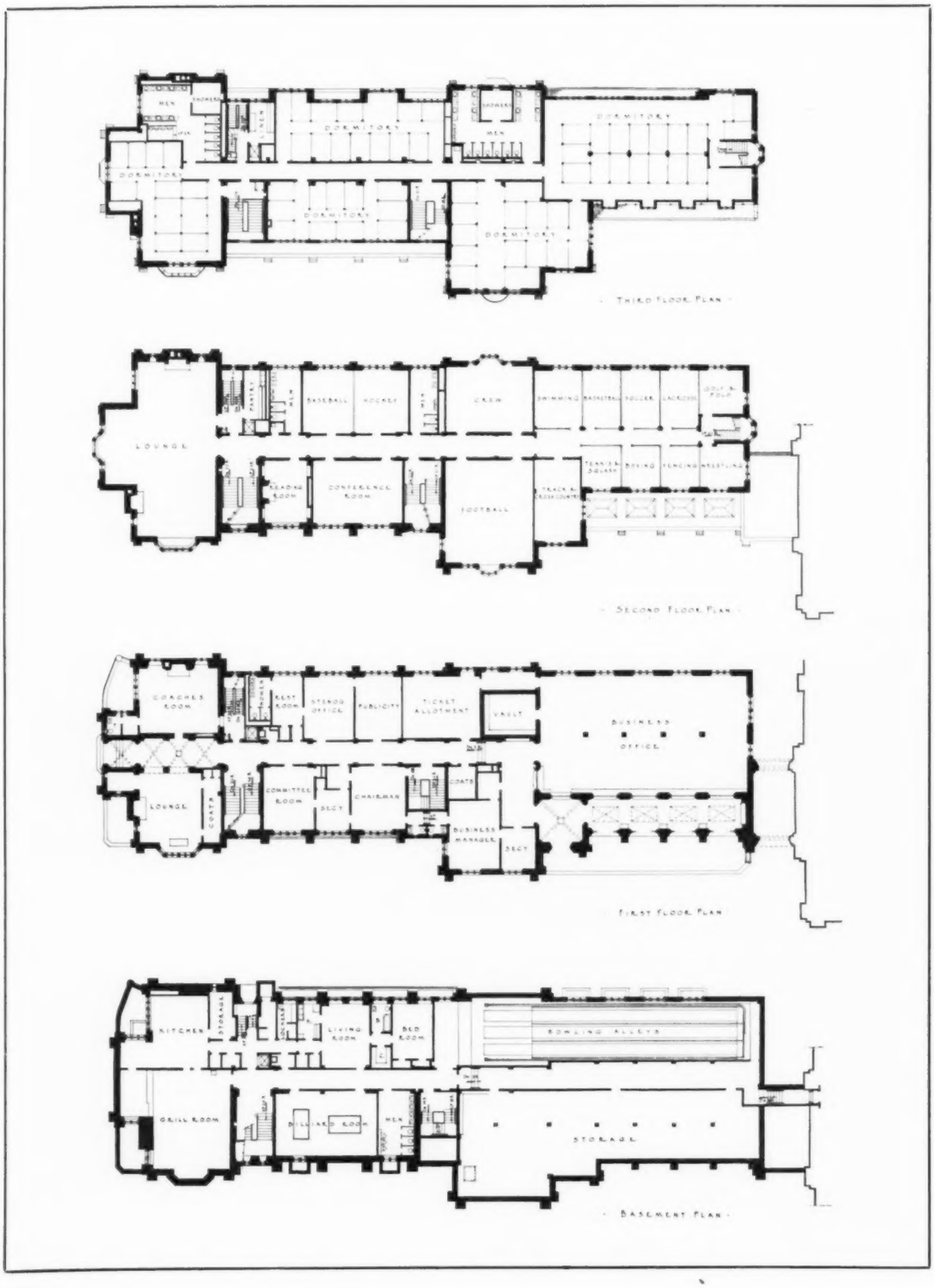
Ray Tompkins House adjoins the Payne Whitney Gymnasium and bears to it a closely related and supplementary function. It contains social and club rooms, a dormitory for visiting teams and the business offices of the University Athletic Association.

Entrance to the club section is from Dixwell Avenue. On the first floor are located a general lobby and a coaches' lounge. The basement contains a grillroom, with kitchens attached, for serving meals to members of visiting teams and their hosts; a bowling alley, a billiard room, an apartment for a resident superintendent and rooms for storage and mechanical equipment.

On the second floor are located a large lounge room with two fireplaces, and a reading room. The third floor has visiting team accommodations consisting of five large rooms subdivided by curtained cubicles to provide sleeping quarters for seventy men, and toilets and showers for their use.

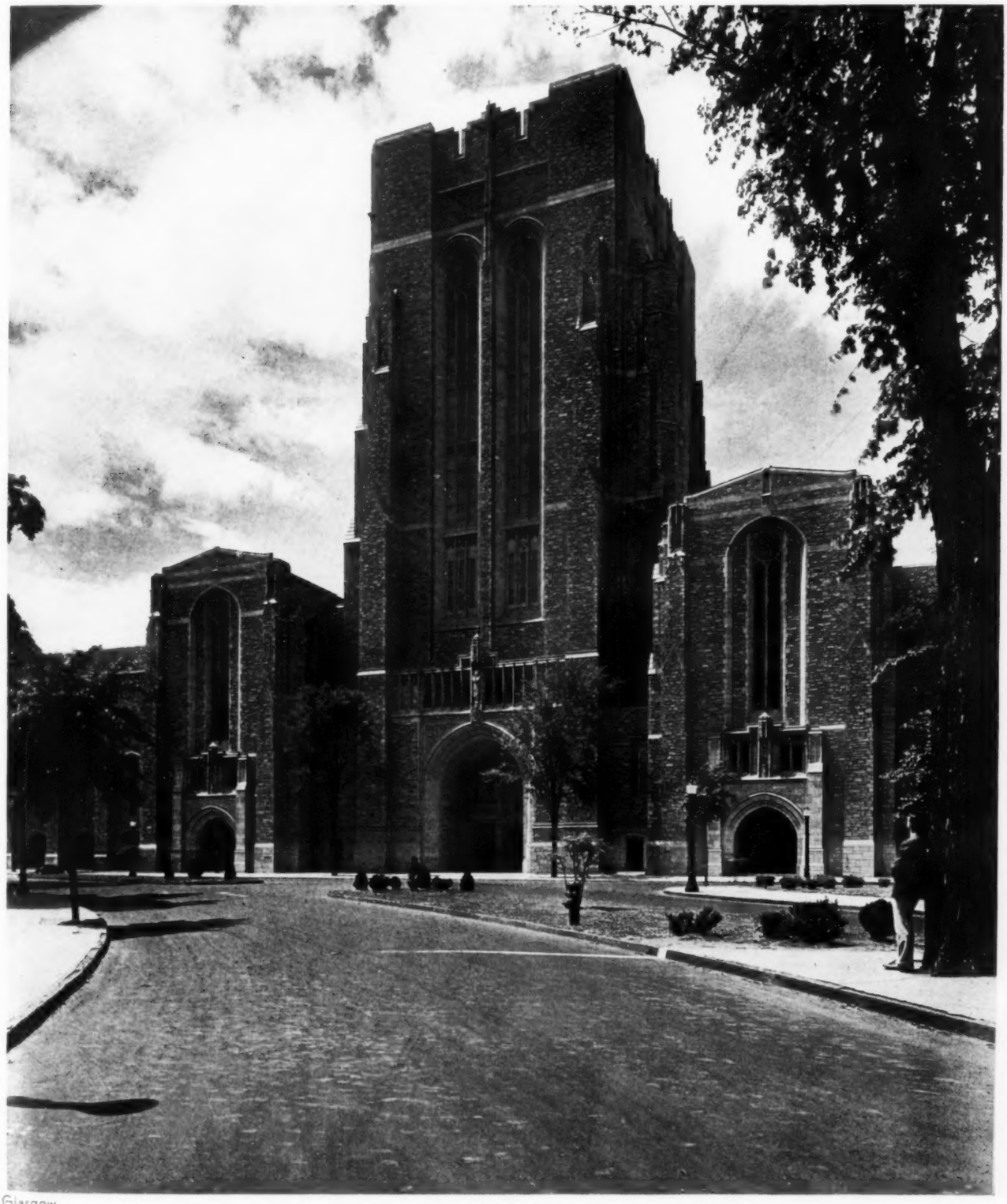
The Athletic Association offices are on the end connecting with the Gymnasium. A general business office, 35′ x 65′, is separated from a public space, 9′ 6″ wide and extending along one long side, by an iron and glass banking screen with sliding wickets for ticket distribution. Four double doors from the public space lead directly to the street. Connected with the business office is a ticket allotment space and a large fireproof vault. Adjacent to it are offices for the business manager and his secretary, the chairman and his secretary, and the publicity manager, general stenographers' office and committee meeting room. The second floor of this section contains five large offices, nine small offices and a conference room, all for the use of student team managers and committees.

In materials, construction and general character Ray Tompkins House conforms to the details of the Payne Whitney Gymnasium.



RAY TOMPKINS HOUSE AT YALE UNIVERSITY
JOHN RUSSELL POPE, ARCHITECT

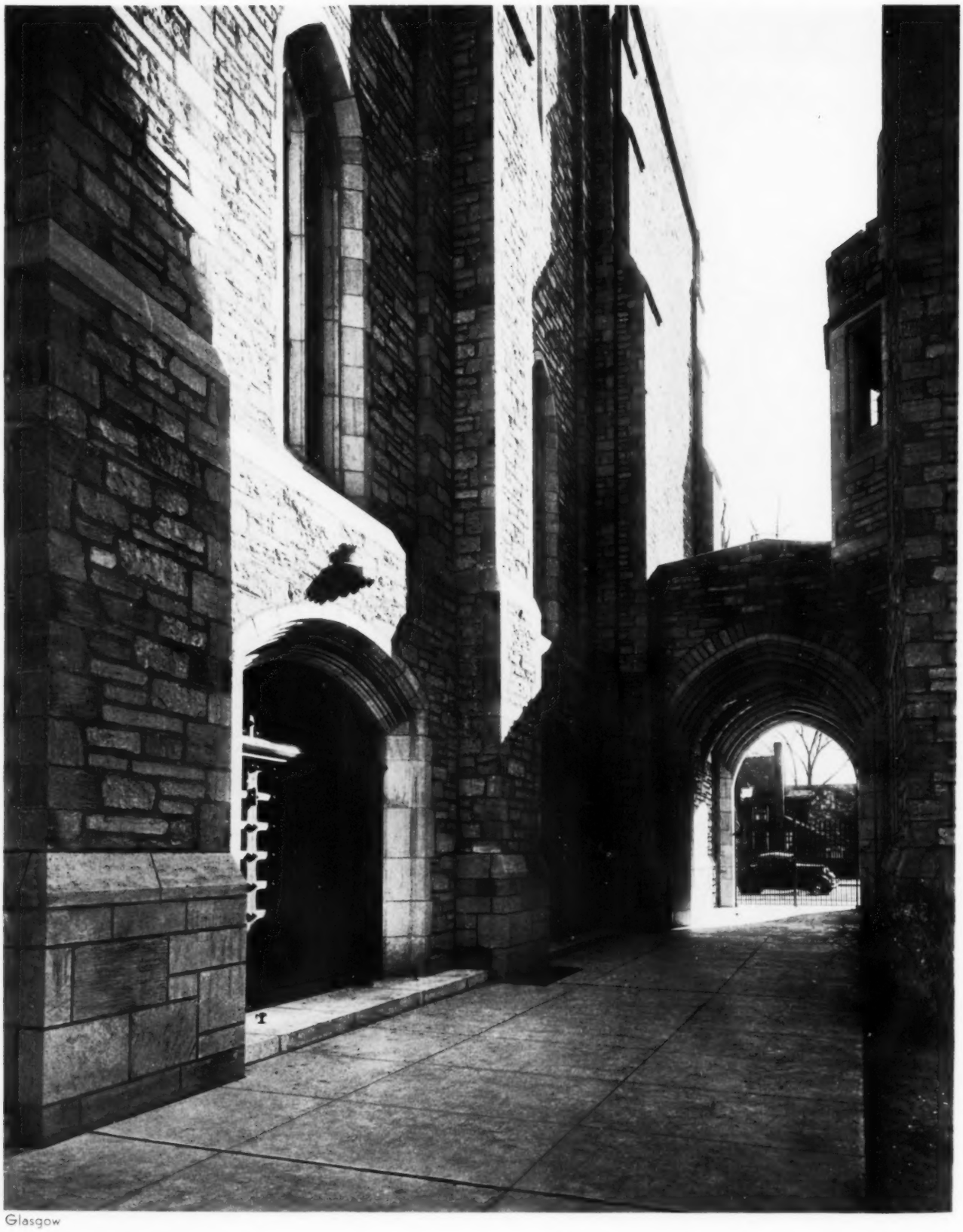
PAYNE WHITNEY GYMNASIUM—RAY TOMPKINS HOUSE



Glasgow

Tower Unit.

PAYNE WHITNEY GYMNASIUM AT YALE UNIVERSITY
JOHN RUSSELL POPE, ARCHITECT



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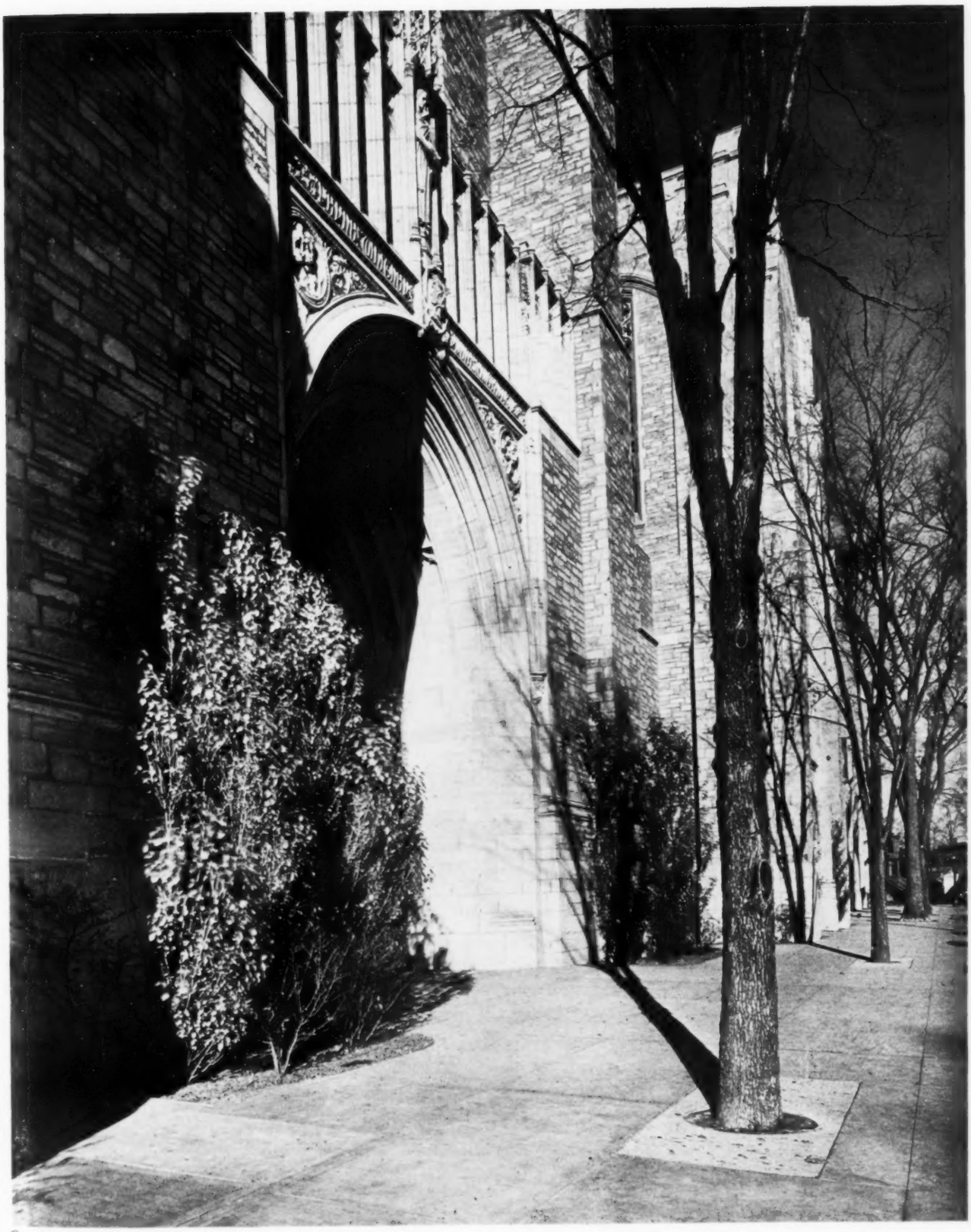
PAYNE WHITNEY GYMNASIUM
YALE UNIVERSITY
JOHN RUSSELL POPE, ARCHITECT

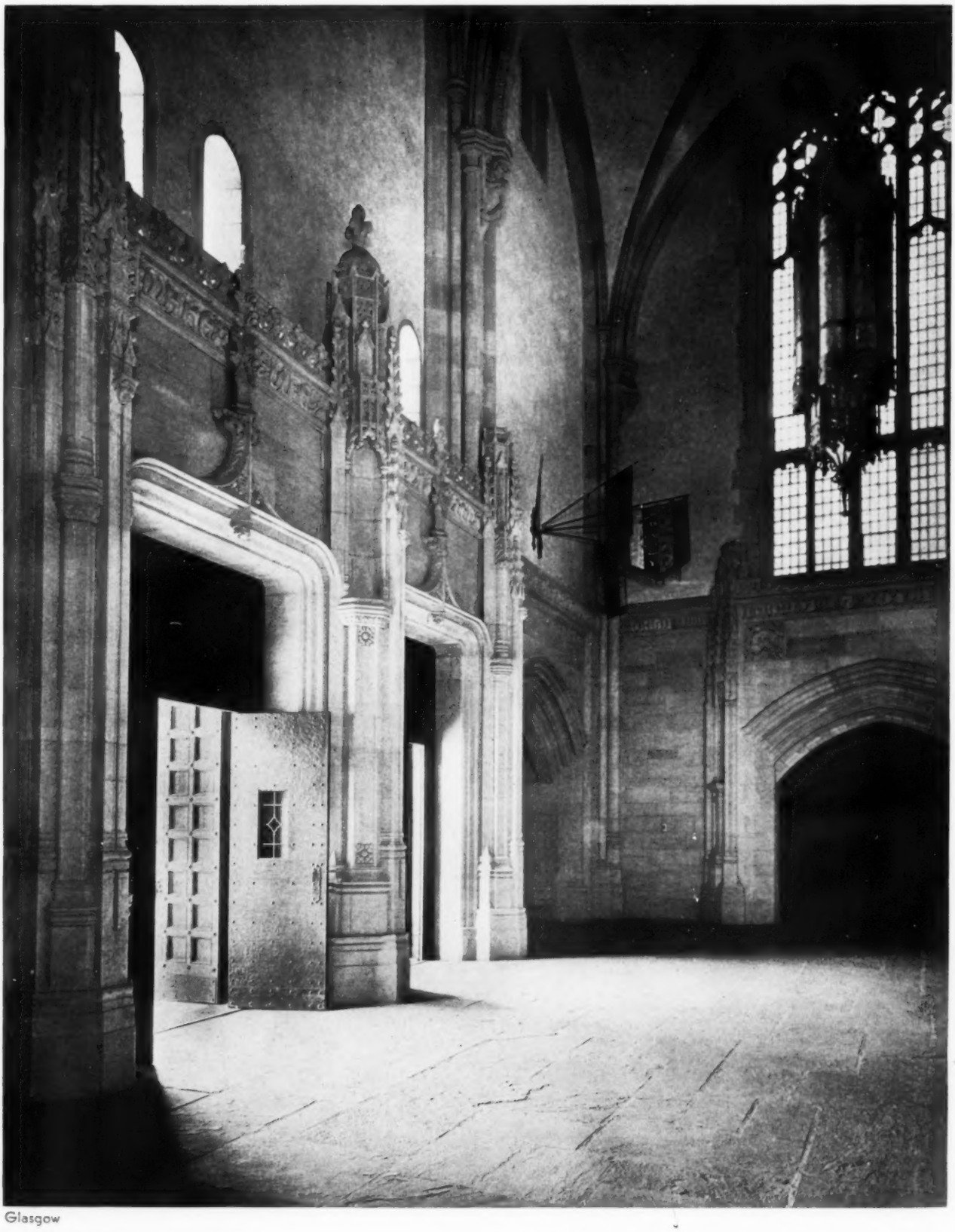
Connecting link between the Gymnasium and Ray Tompkins House.



Glasgow

Main Entrance on Tower Parkway.

PAYNE WHITNEY GYMNASIUM
YALE UNIVERSITY
JOHN RUSSELL POPE, ARCHITECT



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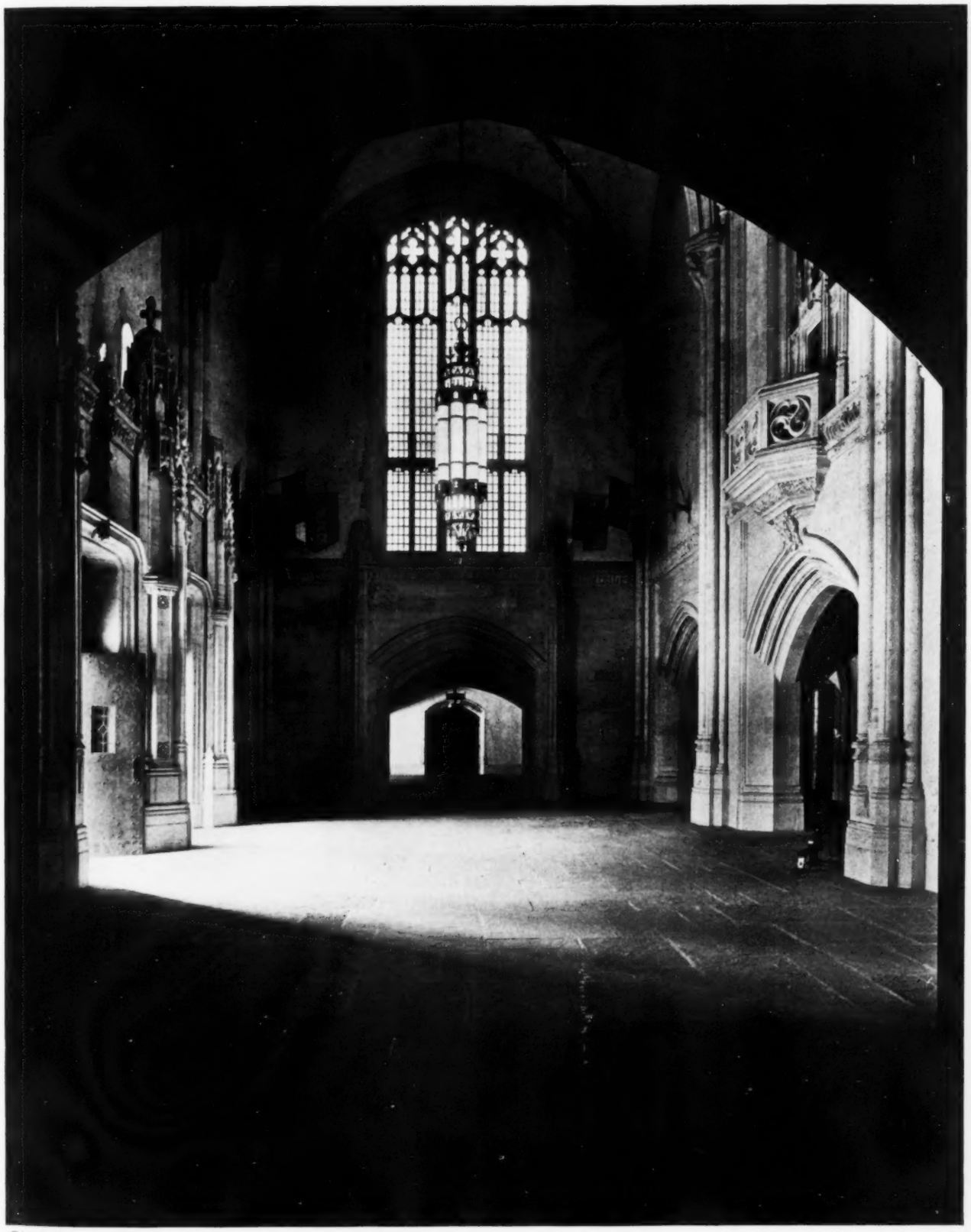
PAYNE WHITNEY GYMNASIUM
YALE UNIVERSITY
JOHN RUSSELL POPE, ARCHITECT

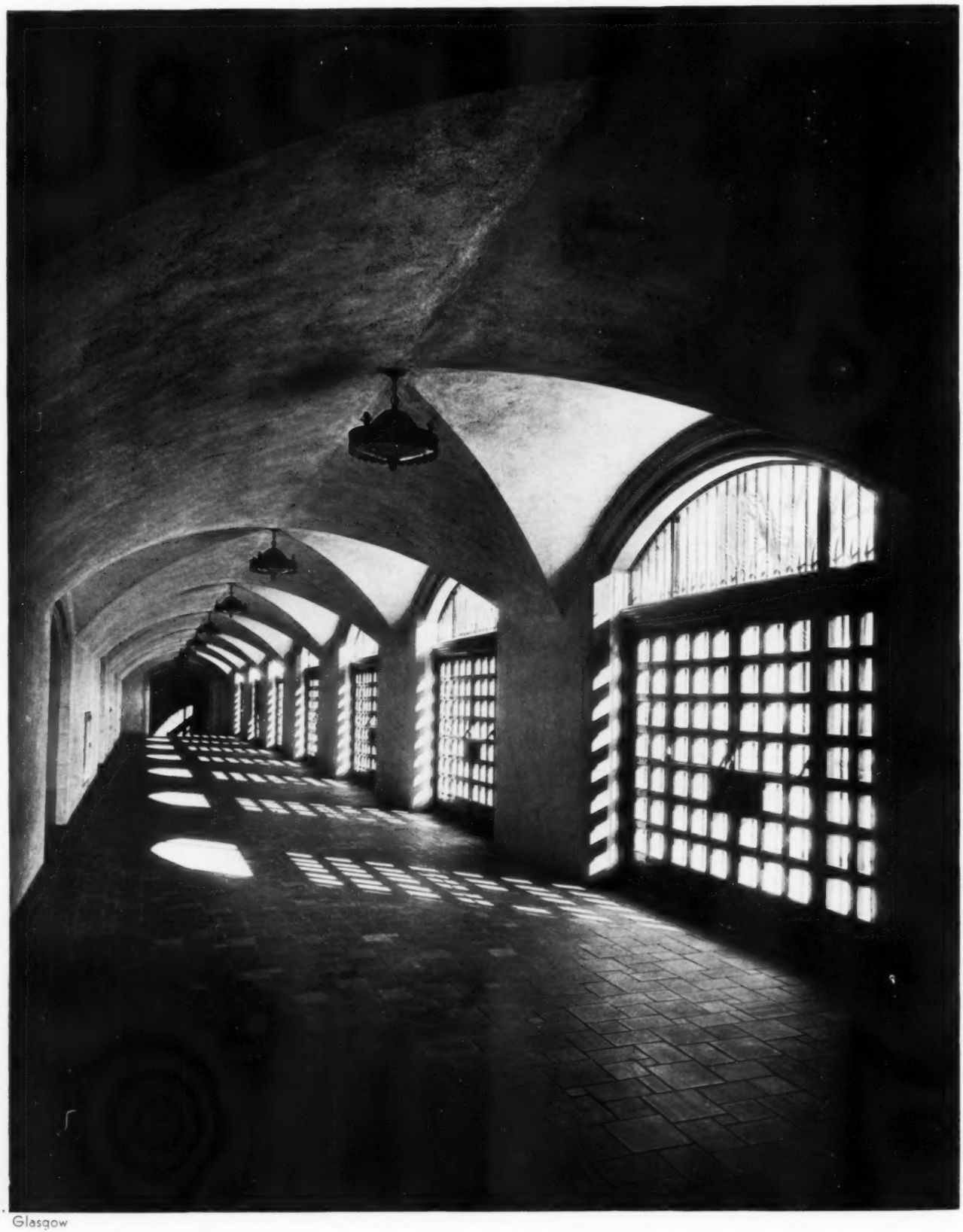
Entrance doors from Main Lobby. The inner doors are leather covered and the heavy oak outer doors usually stand open.



Glasgow

Main Lobby. This view is from the Amphitheater Lobby. The archway in the center leads to the Exhibition Pool.

PAYNE WHITNEY GYMNASIUM
YALE UNIVERSITY
JOHN RUSSELL POPE, ARCHITECT



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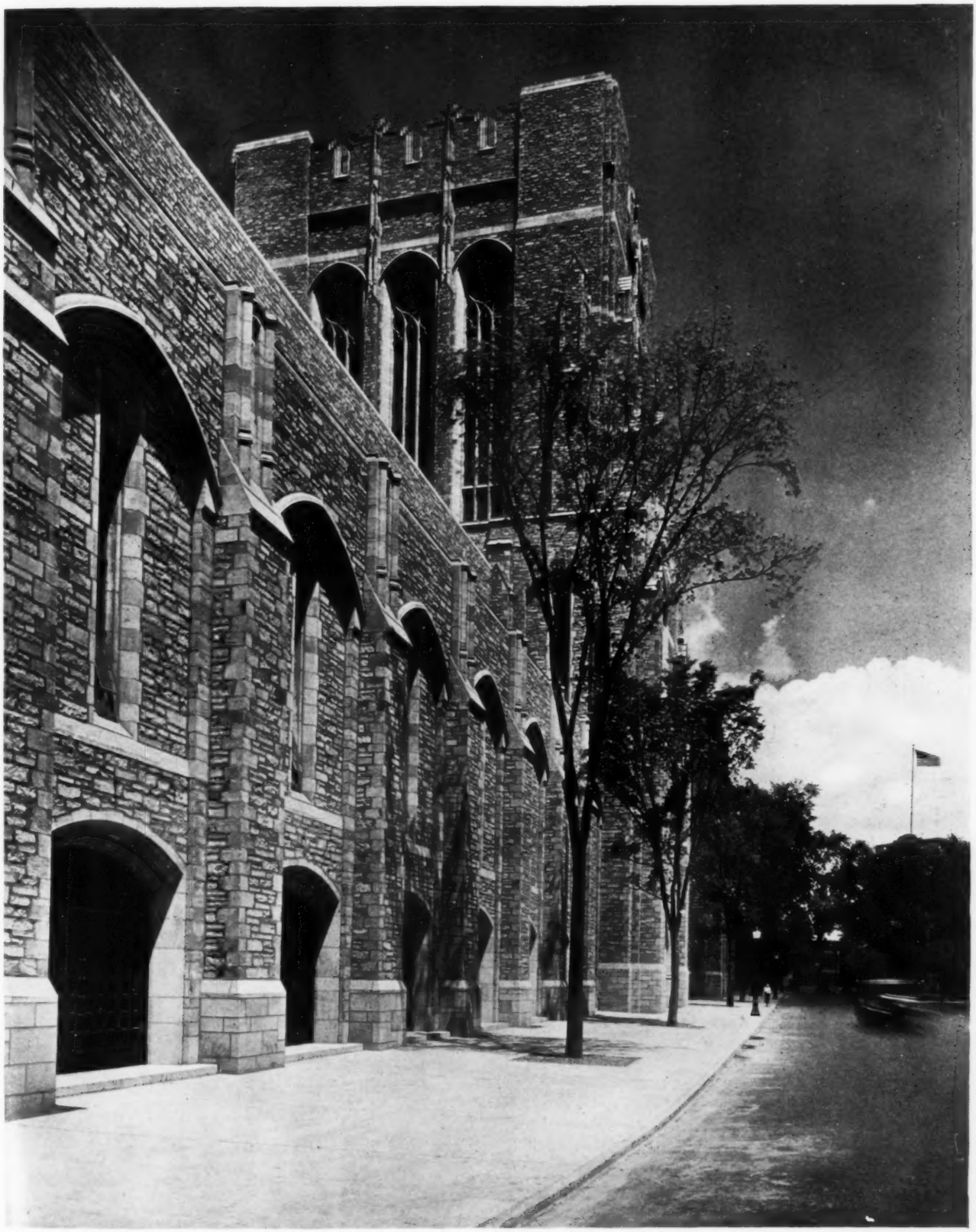
PAYNE WHITNEY GYMNASIUM
YALE UNIVERSITY
JOHN RUSSELL POPE, ARCHITECT

A principal corridor in the Amphitheater. The Exhibition Pool corridors are similar.

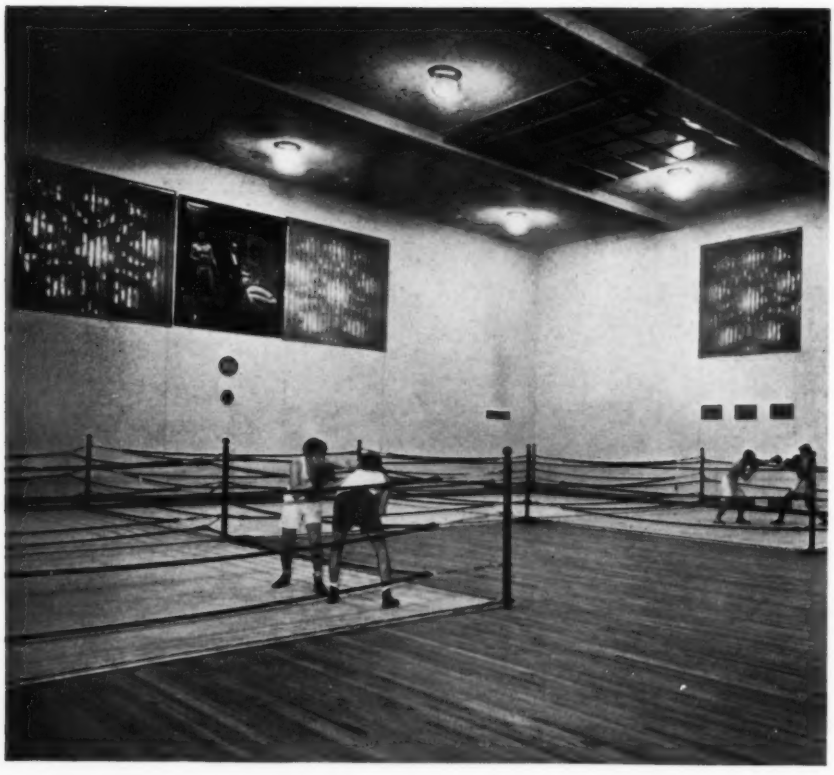


Glasgow

View along Tower Parkway. The Exhibition Pool unit is in the foreground.

PAYNE WHITNEY GYMNASIUM
YALE UNIVERSITY
JOHN RUSSELL POPE, ARCHITECT

Glasgow



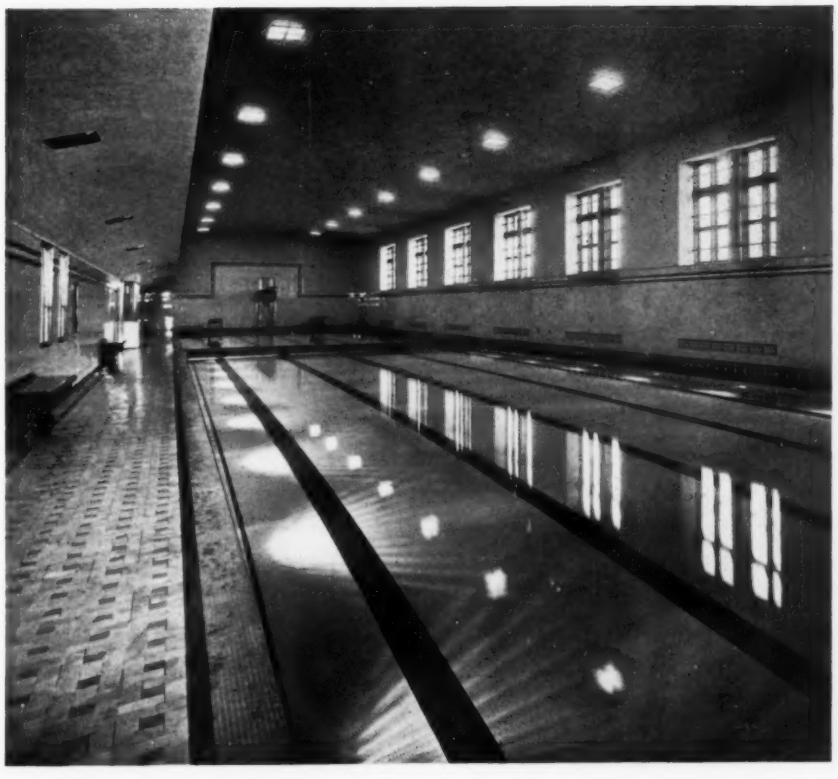
Amphitheater from the play floor. The basketball backstop supports are shown collapsed against the wall.

A corner in the Boxing Room.

PAYNE WHITNEY GYMNASIUM
YALE UNIVERSITY
JOHN RUSSELL POPE, ARCHITECT

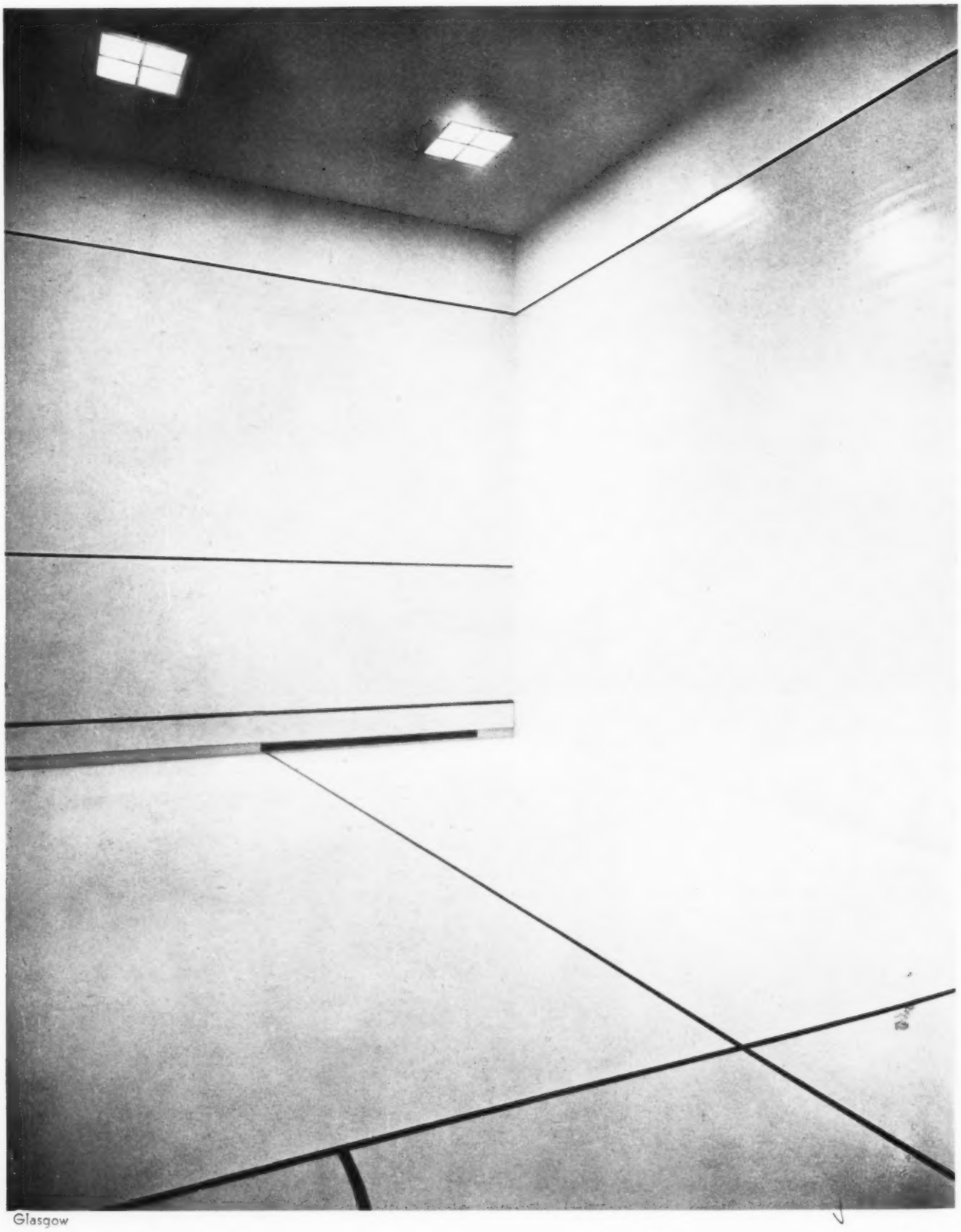
Glasgow

Fencing Room. The three other main tower rooms are similar except for equipment.



View of the Practice Swimming Pool.

PAYNE WHITNEY GYMNASIUM
YALE UNIVERSITY
JOHN RUSSELL POPE, ARCHITECT



Glasgow

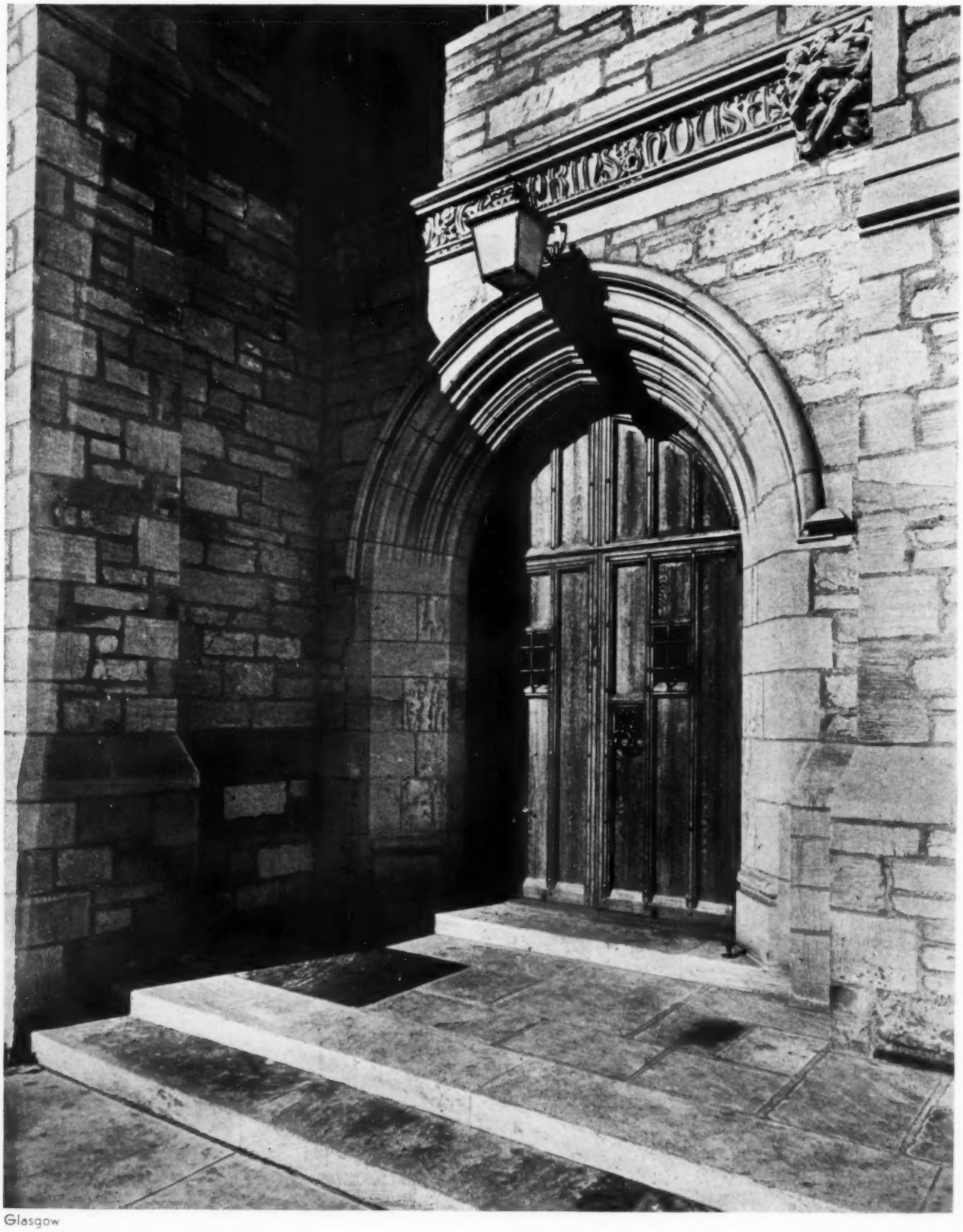
One of the twenty-eight Squash Courts.

PAYNE WHITNEY GYMNASIUM
YALE UNIVERSITY
JOHN RUSSELL POPE, ARCHITECT

Glasgow

General view from Tower Parkway.

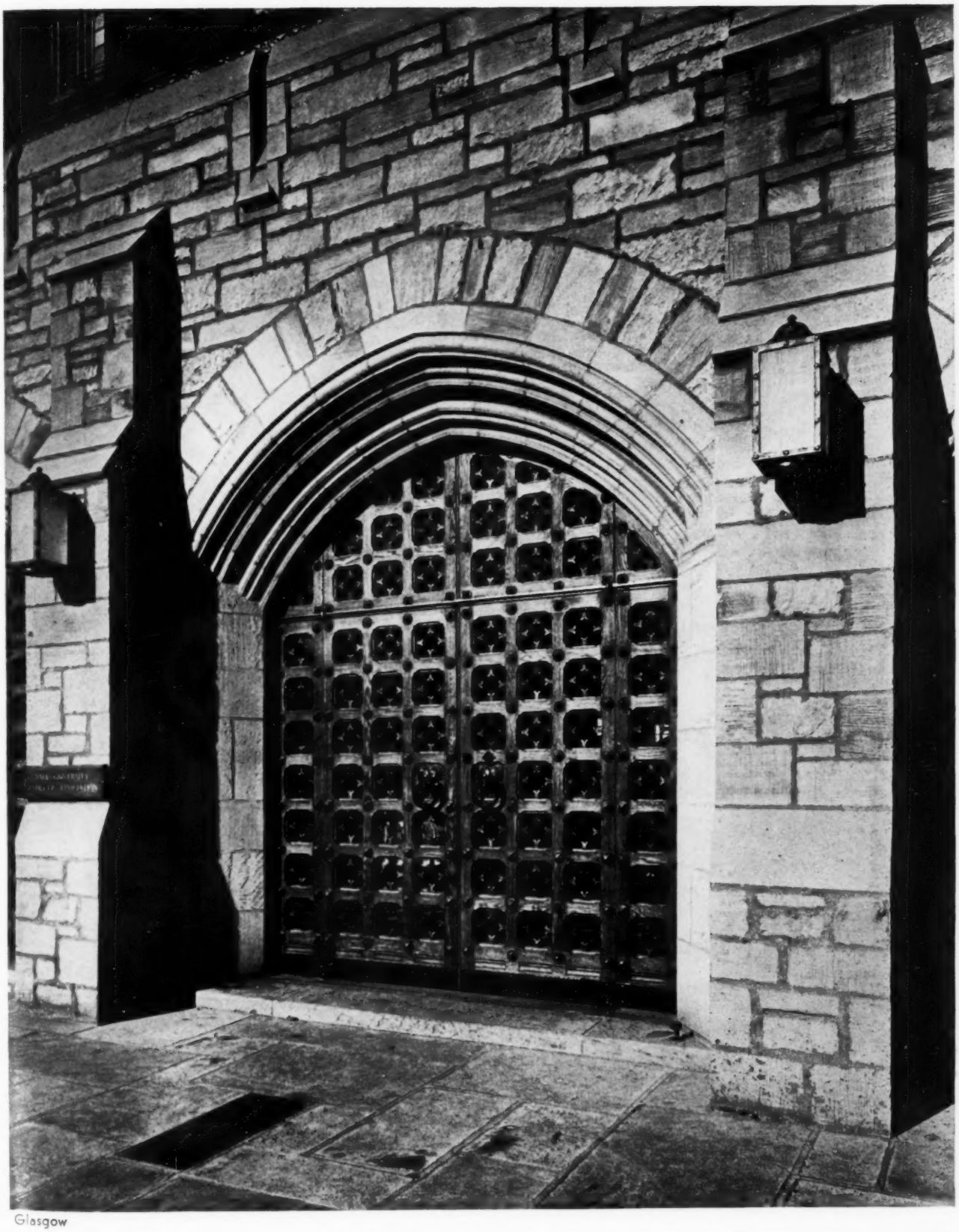
RAY TOMPKINS HOUSE
YALE UNIVERSITY
JOHN RUSSELL POPE, ARCHITECT



Glasgow

Tower Parkway entrance.

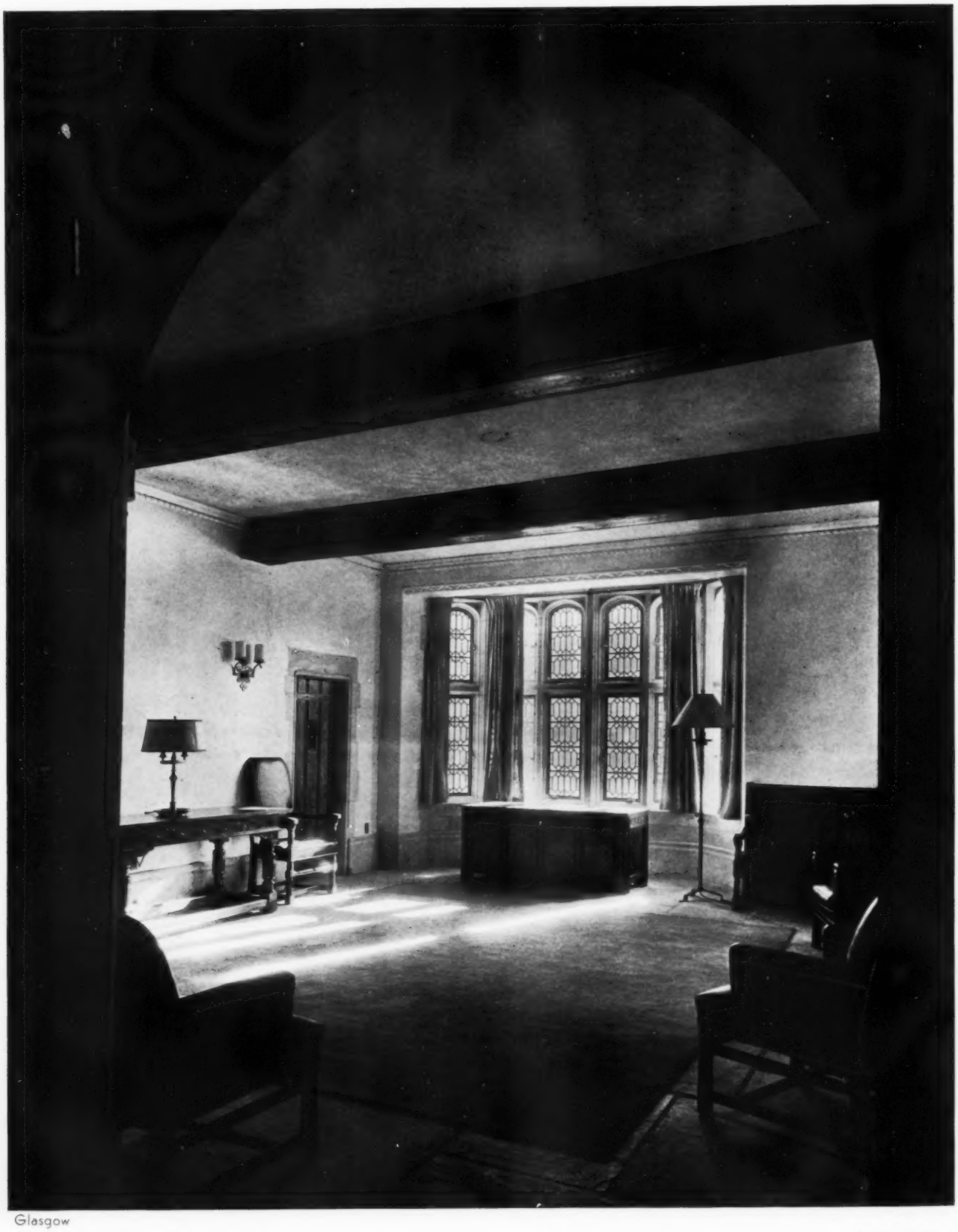
RAY TOMPKINS HOUSE
YALE UNIVERSITY
JOHN RUSSELL POPE, ARCHITECT



Glasgow

One of the glazed oak doors to the public ticket space.

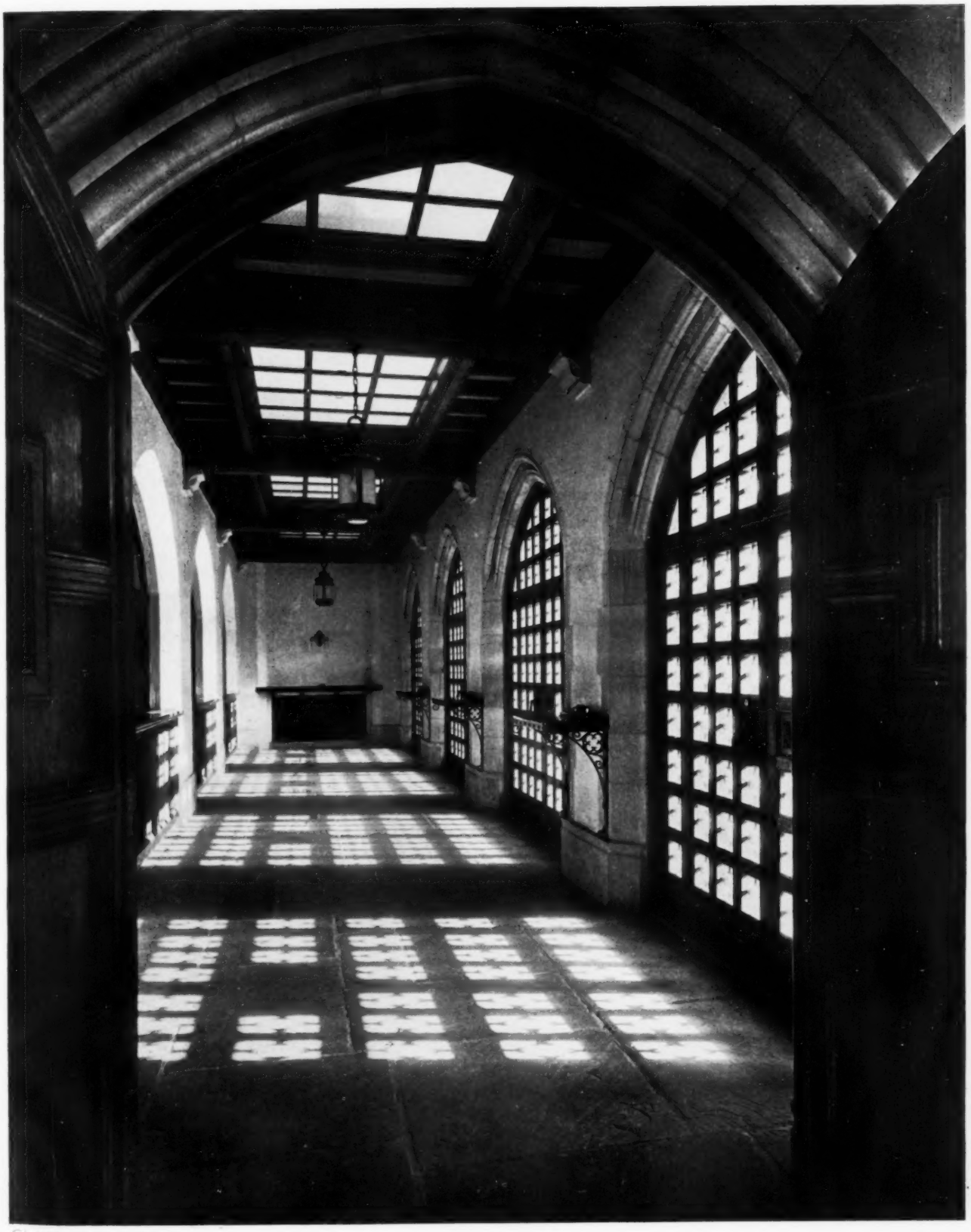
RAY TOMPKINS HOUSE
YALE UNIVERSITY
JOHN RUSSELL POPE, ARCHITECT



Glasgow

Club Lobby.

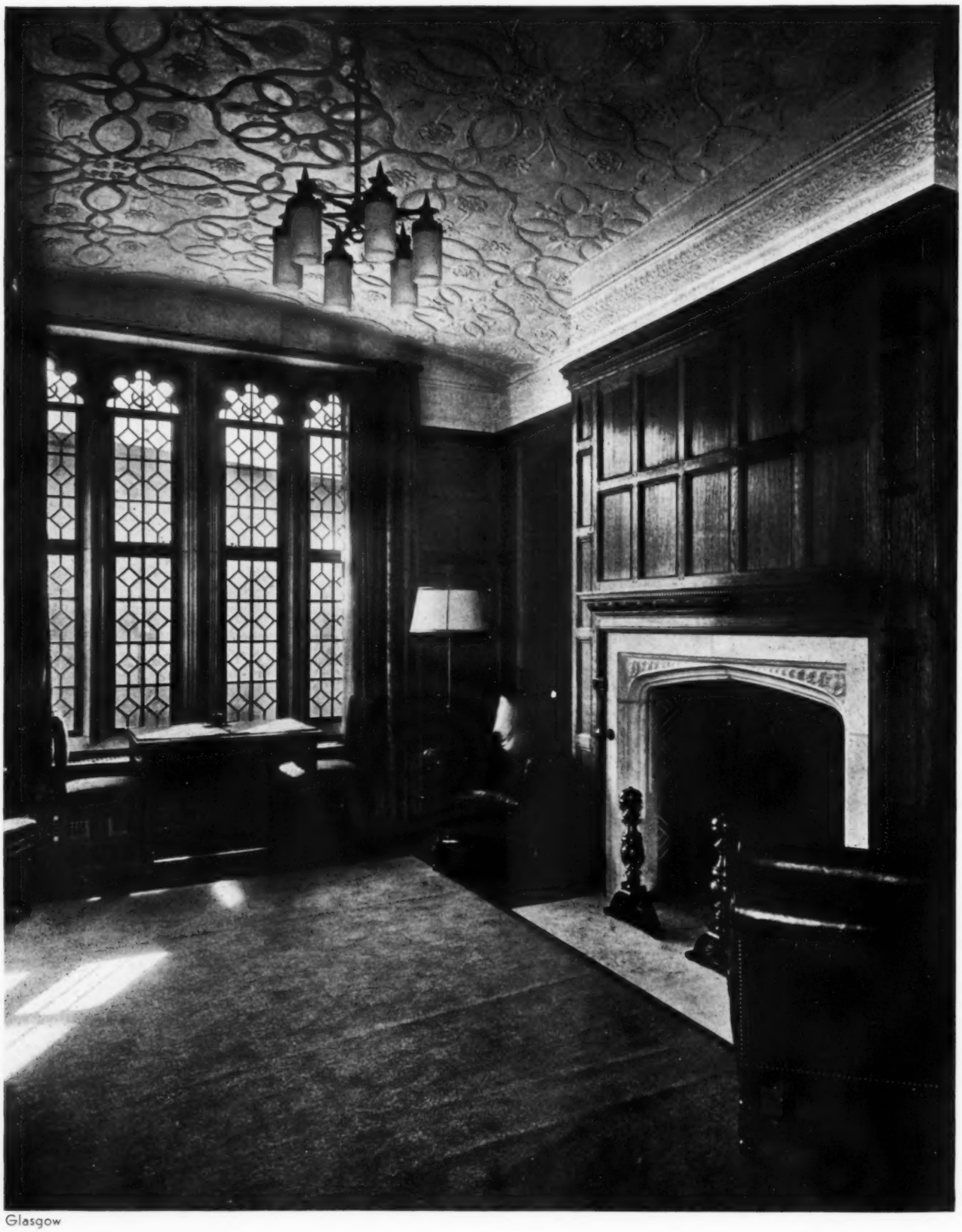
RAY TOMPKINS HOUSE
YALE UNIVERSITY
JOHN RUSSELL POPE, ARCHITECT



Glasgow

Interior of public ticket space.

RAY TOMPKINS HOUSE
YALE UNIVERSITY
JOHN RUSSELL POPE, ARCHITECT



Glasgow

Reading Room.

RAY TOMPKINS HOUSE
YALE UNIVERSITY
JOHN RUSSELL POPE, ARCHITECT

PORTFOLIO OF CURRENT ARCHITECTURE

Keystone Photo Service

BATHHOUSE AND SWIMMING POOL
WARNER HOT SPRINGS, CALIFORNIA
GORDON B. KAUFMANN, ARCHITECT

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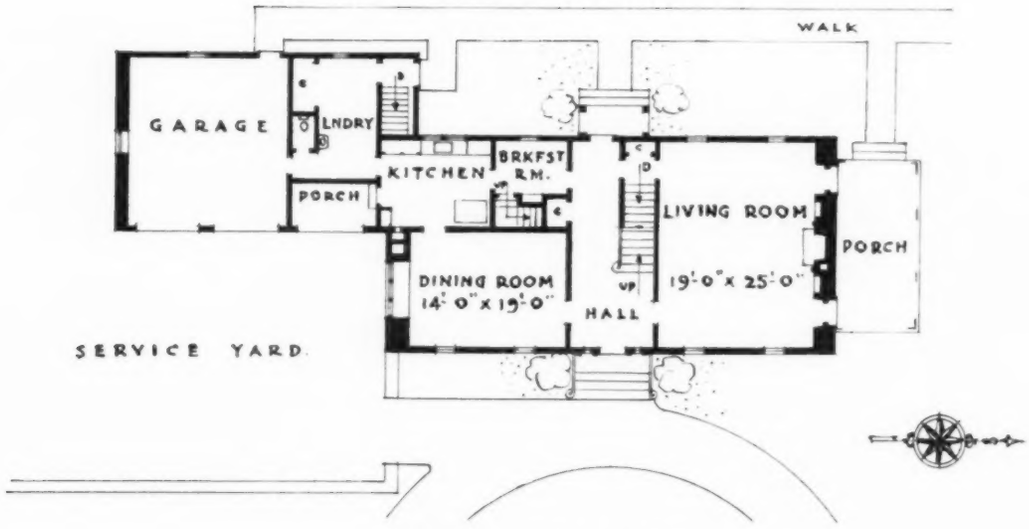

· FIRST · FLOOR · PLAN ·

HOUSE OF HARRY F. HUDSON
ORCHARD PARK, NEW YORK
HUDSON AND HUDSON, ARCHITECTS

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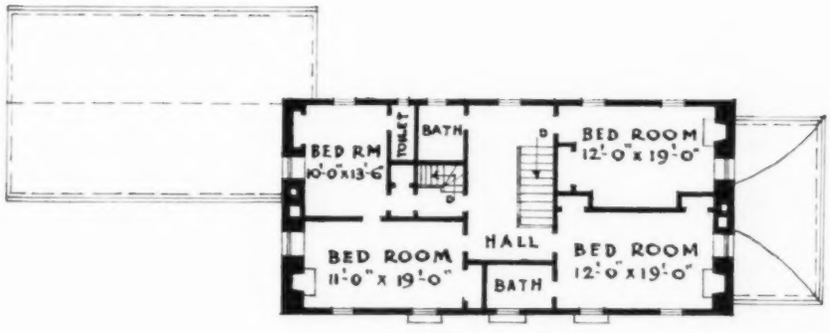
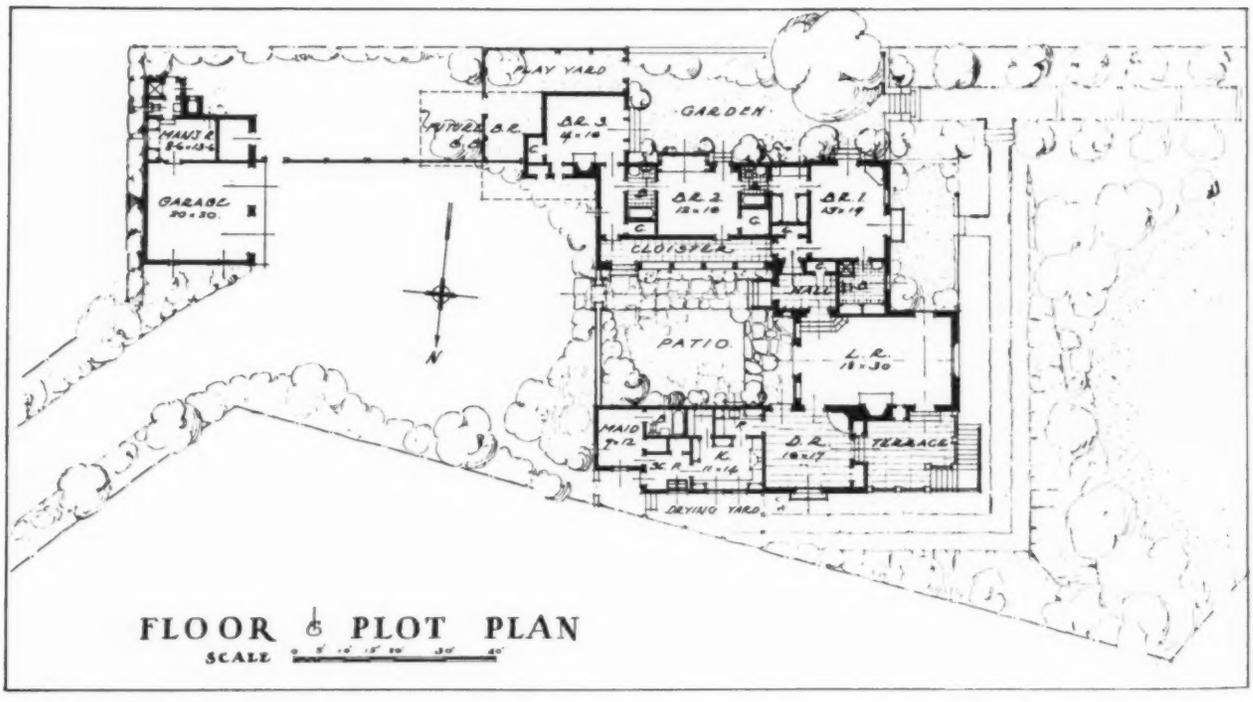


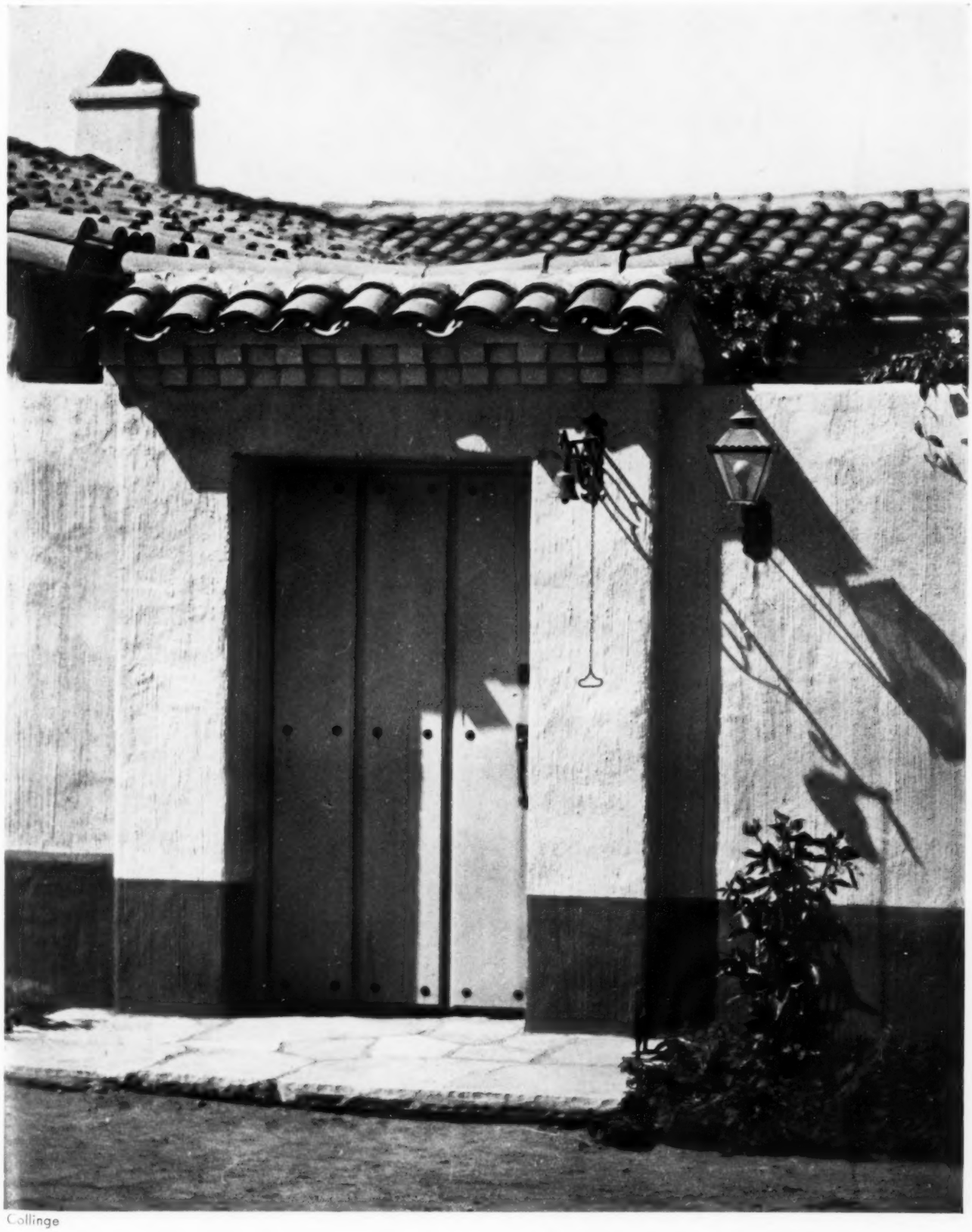
· SECOND · FLOOR · PLAN ·

HOUSE OF HARRY F. HUDSON
ORCHARD PARK, NEW YORK
HUDSON AND HUDSON, ARCHITECTS

Collinge



HOUSE OF DR. AND MRS. MILTON J. GEYMAN
HOPE RANCH PARK—SANTA BARBARA, CALIFORNIA
WINSOR SOULE & JOHN FREDERIC MURPHY, ARCHITECTS



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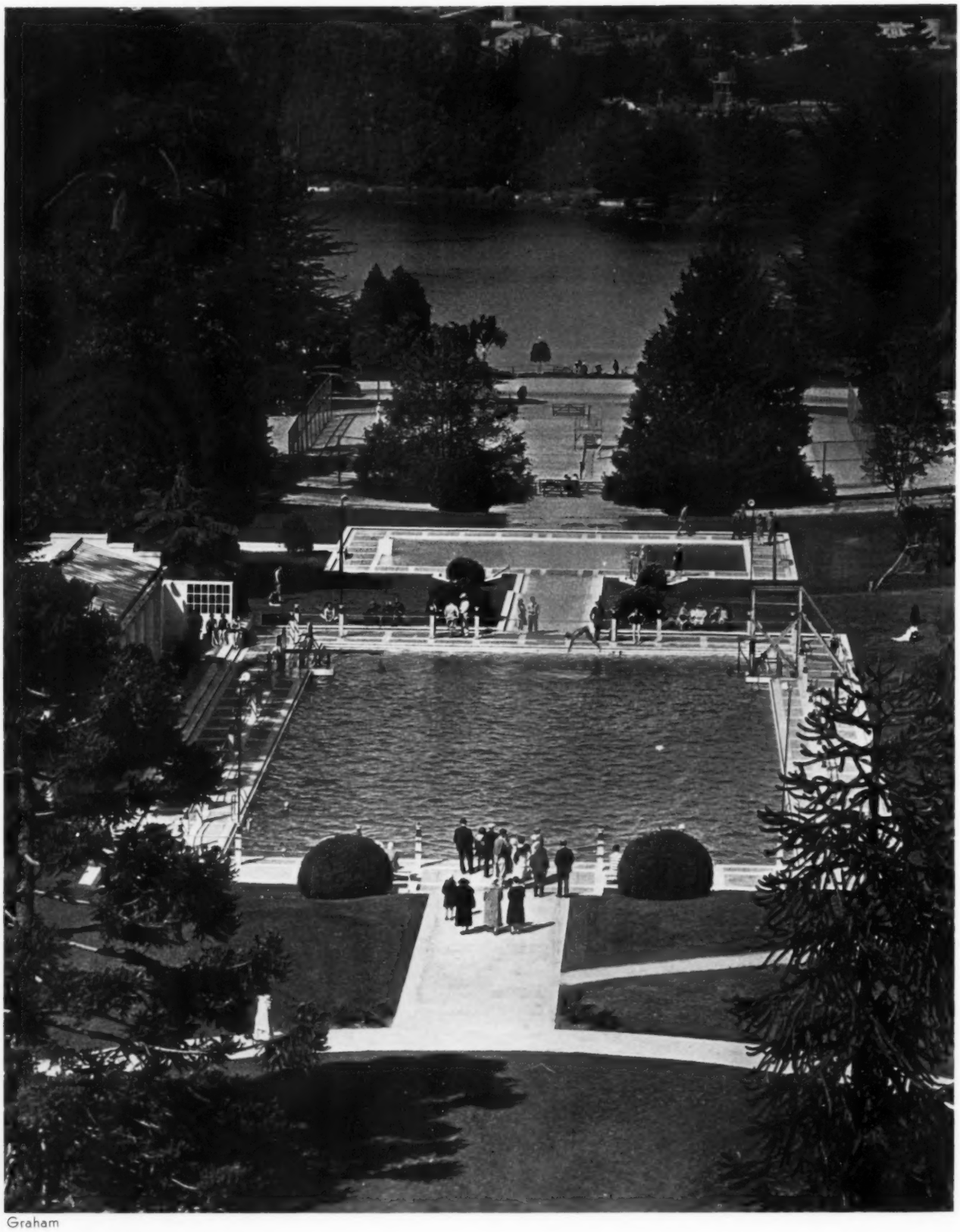


Graham

ROMAN PLUNGE AT HOTEL DEL MONTE
DEL MONTE, CALIFORNIA
LEWIS P. HOBART, ARCHITECT .

ALTERATION OF OLD SCHOOL PROPERTIES

By H. C. ROBERTS, Board of Education, Sioux City, Iowa

The average school building designed and erected forty or more years ago presents two separate problems:

1. **EDUCATIONAL—obsolescence from the standpoint of present-day educational programs and requirements.**
2. **PHYSICAL—external appearance out of harmony with modern structures; inadequacy of safety standards; structural weaknesses resulting from action of weather, moisture, frost, settlement of walls, weakening of heavy wood roof trusses, and general deterioration.**

The architect's survey is the first step towards determining to what extent and how well these problems may be solved, together with preliminary estimates of cost. A survey of the Bryant School (original building erected in 1890 with additions in 1911 and 1919) is cited as typical of a group of buildings in Sioux City, Iowa. This survey revealed the following data.

The Problem

The west portion of the building which was erected thirteen years ago was found to be, as expected, in good condition, of fire-resistive construction, and closely approximating present educational standards.

The east portion of the building, erected forty-two years ago, due to its age and methods of construction, was found to be in critical condition.

Floor joists in some cases sagged badly owing to the fact that they were of wood with spans of as much as 27 feet. It had been found necessary to support the beams with small columns in the centers of some rooms.

Corridor floors were of combustible materials and badly worn. Stairways were crowded for space; they were also combustible.

Daylighting was extremely bad, being generally from inadequate windows in the ends of rooms. In some cases windows on two sides of the room produced cross lighting. The electric lighting system consisted of only one or two outlets in several rooms.

Plastering and wood finish were in a bad state of repair.

The only toilet facilities in the building were in the basement, a long distance from some classrooms. They were inadequate and located in poorly lighted and ventilated rooms.

The heating plant was outside the main building walls and the boiler room itself projected approximately 8 feet above the grade line.

The exterior of the building was faced with two types of brick, one of which was common brick painted to match the other.

The site, somewhat irregular in contour, had been considerably cut up by various retaining walls and steps leading from one level to another.

The Solution

The stairway arrangement in the east portion of the building was entirely changed and adequate fireproof stairways were installed. The old wood corridor floors were likewise replaced with reinforced concrete and all stairs and corridors were finished with terrazzo.

The basement area, formerly used for toilet and storage rooms, was converted into three classrooms. To this end, the ground around the building was cut away to the basement floor level, making the classrooms above grade and with full standard windows.

Certain interior partitions and walls were relocated so as to make all classrooms of standard dimensions and with proper window lighting.

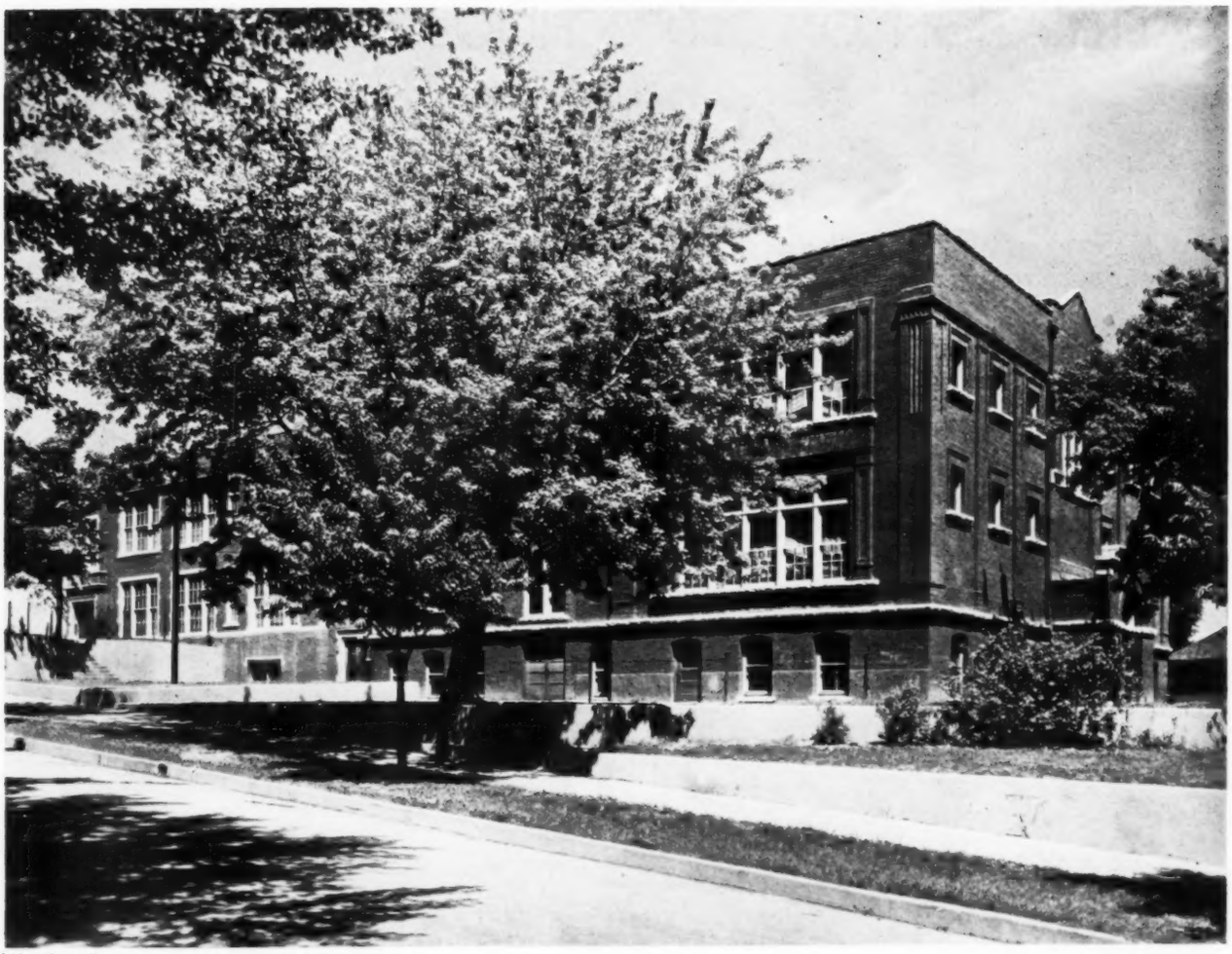
Proper electrical illumination was provided by rewiring the building with adequate outlets and efficient electrical units in each room. A separate electric circuit for electric clocks in all rooms was included. Inside aerial wires were provided and each room was equipped with aerial outlet properly grounded and with utility outlets for plugging in radio receiving sets.

Properly lighted and ventilated toilet facilities were provided on each floor. Office, rest room and administration requirements were cared for in an entirely new suite of rooms.

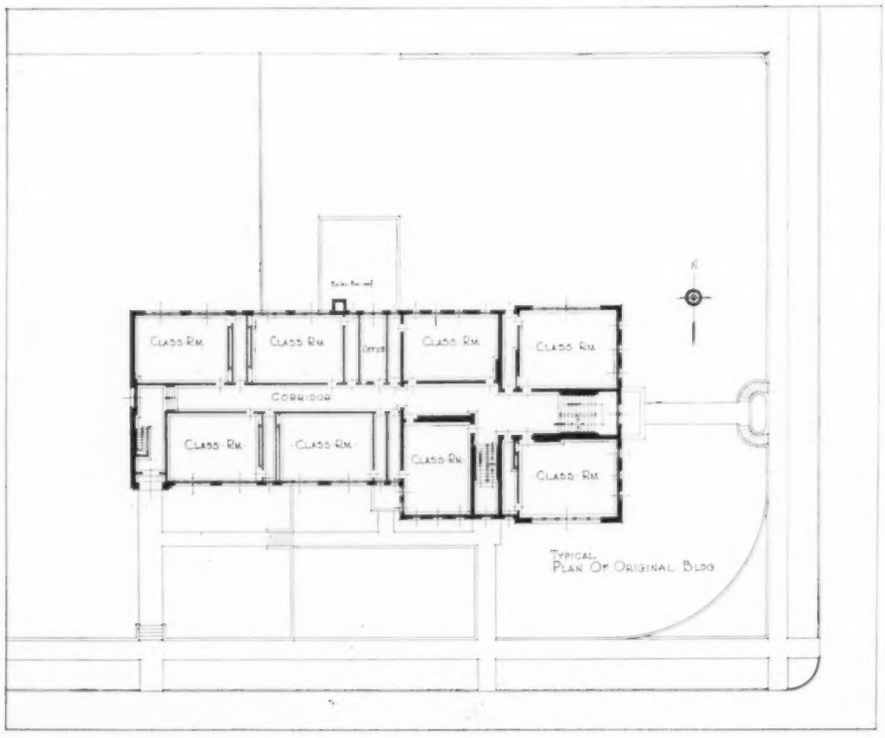
All walls were entirely replastered and new interior oak wood finish was installed to produce an appearance uniform with that of the newer portion of the building. Walls and ceilings throughout the building were redecorated. In the corridors a two-tone stipple was used with darker tones in the wainscoting. In the classrooms plain light colors were used on side walls and ceilings with darker wainscoting below window stool lines.

The ventilating system was rearranged to provide for recirculation of air in any desired percentage, classrooms were vented into the corridors instead of directly to the attic area, providing heat for the corridors and removing the fire spread hazard of vertical flues. The attic area was insulated to reduce heat leakage. Window weatherstripping and plastic caulking around the frames were included.

On the building exterior the face brick was re-



Woodworth



BEFORE REMODELING

Original building of 16 class-rooms was erected in 1892, with additions made in 1911 and 1919.

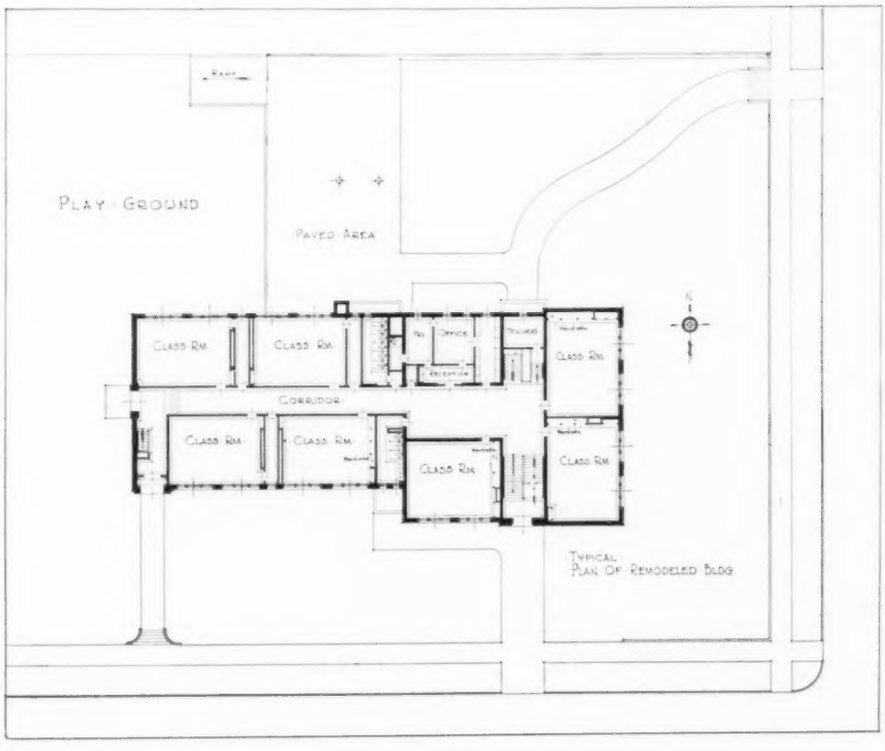
BRYANT GRADE SCHOOL
SIOUX CITY, IOWA

BEUTTLER AND ARNOLD
ARCHITECTS

Woodworth

AFTER REMODELING

Remodeled in 1932, the school now has 19 classrooms.



BRYANT GRADE SCHOOL
SIOUX CITY, IOWA

BEUTTLER AND ARNOLD
ARCHITECTS

moved and a new facing of modern brick with new stone trim was installed.

The heating plant was lowered so that the roofs of the boiler and coal rooms were made flush with the ground surface, giving a large paved area. A paved ramp to the playground, which is on a slightly higher level, was provided.

All walks and retaining walls on the ground were removed and new walks laid to fit the new landscaping plan which substituted gradual slopes and terraces for areas inclosed by retaining walls.

The wood trim on the exterior of the building was completely repainted and all stonework repointed and put in good condition.

The Cost

The total expenditure, including general construction work and the remodeling of heating, ventilating, plumbing and electric wiring items, was approximately $53,000. This sum was made up of the following items:

Removal and replacing of face brick on exterior of building	$ 7,000
New and remodeled plumbing	3,700
Remodeling of heating plant and installing mechanical stokers	7,500
New electric wiring and fixtures	1,800
General construction work, including decorating, painting, grading and landscaping	33,000

General Survey

The Bryant School is the sixth building remodeled on this general plan. Each building naturally constituted a distinct problem owing to variations of size, plan of arrangement, type of construction and equipment. The costs have ranged from $40,000 to $70,000 depending on the amount of changes and replacements.

With the exception of the Bryant, all remodeled schools have had the heating plants and coal bunkers inside the basement and directly under classrooms. In each case new fireproof boiler and coal rooms have been constructed outside and adjoining the buildings, entirely underground with concrete slab roof at grade level.

Originally all of these buildings had high wood-truss hip roofs of varying pitch and style, with gables and towers in addition. In remodeling these were entirely removed and replaced with flat pitch and gravel roofs, draining into large down spouts inside the building. The Bryant roof had been changed previous to the time of general remodeling.

Woodworth

Original building (center section) erected in 1902. Additions in 1907 and 1917. Remodeled in 1929.

WHITTIER GRADE SCHOOL IN SIOUX CITY, IOWA

BEUTTLER AND ARNOLD, ARCHITECTS

Woodworth

(Above) After remodeling. (Right) Before remodeling. The school, originally built in 1893, was altered in 1932 and capacity enlarged from 14 to 23 classrooms.

LONGFELLOW GRADE SCHOOL
SIOUX CITY, IOWA

BEUTTLER AND ARNOLD
ARCHITECTS

Woodworth

(Above) After remodeling.

(Left) Before remodeling.

Original building, erected in 1885, had 14 classrooms. Remodeled in 1931, the school now has 19 classrooms.

EVERETT GRADE SCHOOL
SIOUX CITY, IOWA

BEUTTLER AND ARNOLD
ARCHITECTS

Woodworth

(Above) After remodeling.

(Right) Before remodeling.

Original building, erected in 1888, was remodeled in 1931, and capacity enlarged from 12 to 16 classrooms.

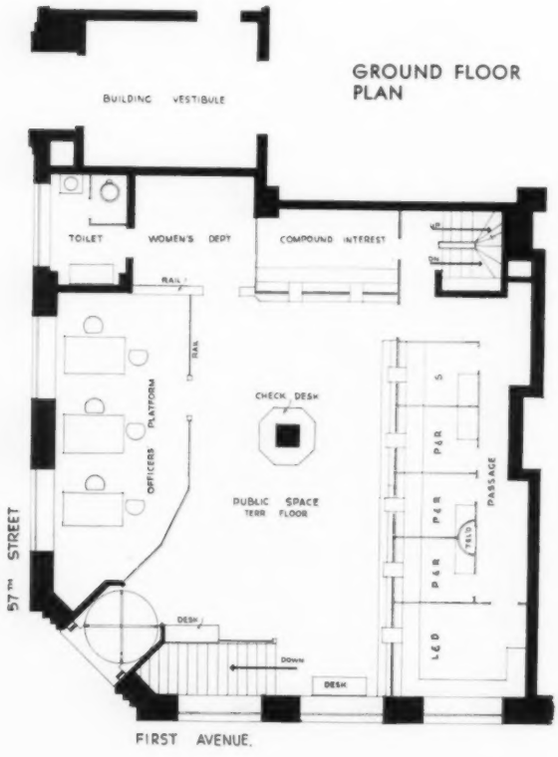
COOPER GRADE SCHOOL
SIOUX CITY, IOWA

BEUTTLER AND ARNOLD
ARCHITECTS

THE NATIONAL CITY BANK
OF NEW YORK
SUTTON PLACE BRANCH
THE NATIONAL CITY BANK OF NEW YORK
THE NATIONAL CITY BANK OF NEW YORK

Charles Latere Co.

SUTTON PLACE BRANCH OF THE NATIONAL CITY BANK OF NEW YORK—AARON G. ALEXANDER, ARCHITECT



A BRANCH BANK

ALTERATION IN NEW YORK CITY

The first floor is only 37 feet wide and 39 feet deep, or 1,430 square feet in area. The basement area is approximately the same and contains a vault, 16 by 8 feet, with four coupon booths and a conference room, and the usual officers' and lobby space, back of which are the employees' lockers and toilets, and stationery and storage room.

On the first floor, banking facilities include three Paying and Receiving Tellers, Security Cage, Loan and Discount, and a two-wicket Compound Interest Cage, with an Officers' Platform of three desks, and also a Women's Department. Stairs lead to work space on a mezzanine floor. There is also a Night Depository for deposits after office hours. Owing to the relatively small floor space the officers' rail was eliminated to give the appearance of a much larger room. The floor is terrazzo.

Charles Latere Co.

ENTRANCE VESTIBULE OF SUTTON PLACE BRANCH OF NATIONAL CITY BANK OF NEW YORK

AARON G. ALEXANDER ARCHITECT

The marble used in the counterscreen is St. Genevieve Golden Vein with Bois Jourdan; the upper part of the counterscreen is gun metal finished bronze with Benedict nickel beading. In order to save space the center column was used for a check desk.

The entrance vestibule circular doors are Benedict nickel, satin finish. On the exterior a concealed canopy has been installed for use on rainy days.

The ceiling is in three colors of acoustical plaster. The lighting fixtures are finished in Benedict nickel and gun metal bronze to harmonize with the counterscreen.

BASEMENT FLOOR PLAN

View of interior looking toward Officers' Platform

Charles Latere Co.

View looking toward Women's Department

SUTTON PLACE BRANCH OF NATIONAL CITY BANK OF NEW YORK
AARON G. ALEXANDER, ARCHITECT

A WAREHOUSE REMODELED FOR NEW USES

By ISIDOR RICHMOND, of Richmond and Morgan, Architects

The best location for the successful chain store grocery is one close to the sources of supplies and in the geographical center of all stores in the chain. These requirements make it necessary for the location to be somewhere near a railroad freight yard for the arrival of supplies by rail from all parts of the country. Since all grocery chains get some part of their merchandise, such as tropical fruits, fish and foreign table delicacies, by water routes, it also becomes advantageous to locate, when possible, near harbor facilities. While it is advantageous to be either close to or within the limits of a large city, since a great deal of merchandise also arrives by truck over land and since all goods must be shipped out by a fleet of trucks, the warehouse must be so placed as to be free from traffic congestion.

Before Alteration

The officials of the Economy Grocery Stores Corporation saw in the location of the building which is illustrated here the possibility of a warehouse which would embody and solve all the above requirements. The building was a rather old ramshackle warehouse built during the Great War by the United States Government on State property, to serve as munitions storage warehouse.

The building was all on one floor—an ideal condition for a grocery warehouse. It was 840 feet in length and 180 feet in depth. It was located on an important traffic artery but beyond the congested area. At the rear and for the full length of the building there was a railroad loading platform 21 feet in width. The building was divided by party walls into six sections.

The entire floor was a thick reinforced-concrete slab, the walls were terra cotta tile left unfinished, and the building was roofed over with a mill constructed roof pitched towards the front and rear.

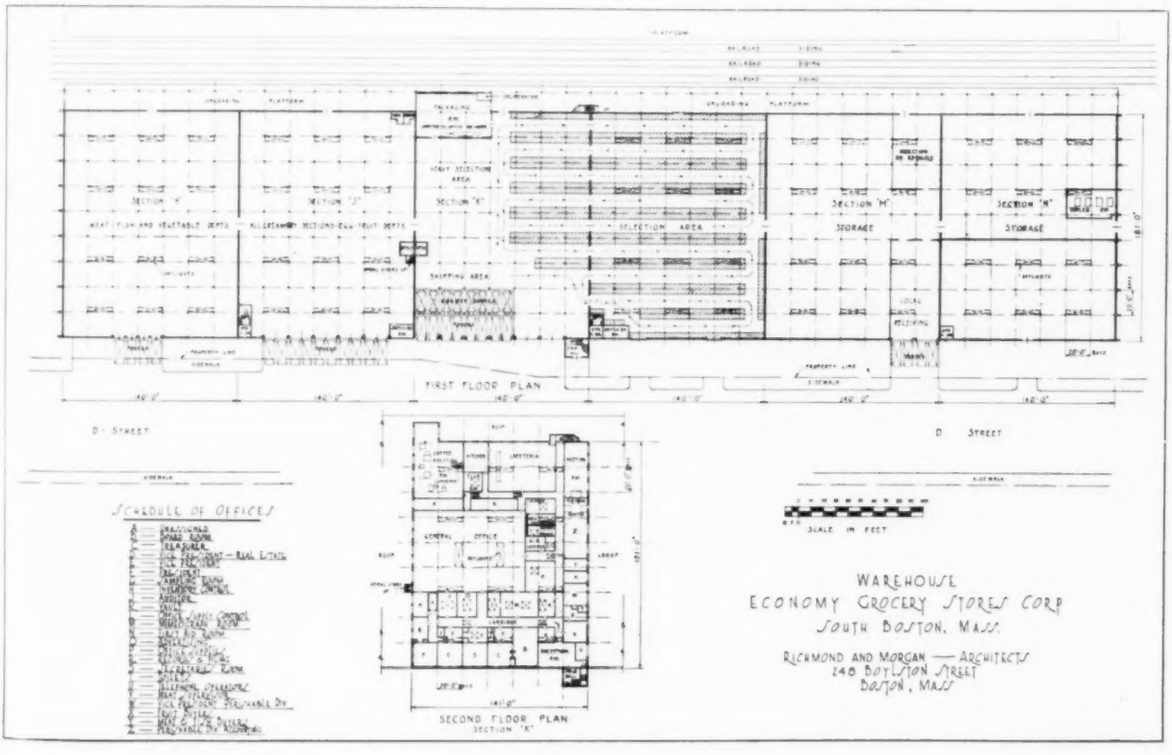
Alterations

The first two sections, allotted to the Perishable Division, comprising meat, fish, vegetables, creamery, and fruit and eggs departments and occupying a total area of slightly more than 50,000 square feet, were planned separately. Up-to-date machinery refrigeration provided for handling at proper temperatures and in proper atmospheric conditions.

While there was ample area on the first floor to permit planning the General and Executive Offices on the same floor level as the warehouse, it was decided, in order to provide for future expansion in the warehouse, to build a second story over one of the centrally located sections and to provide there adequate office space which also would lend itself to future expansion.

Warehousing Facilities

At the rear of the Economy Grocery Stores Corporation warehouse there is a wide concrete



Haskell

(Above): General view after completion of alterations, showing roll-off truck shipping space.

(Left): Detail of exterior before remodeling. The wide over-hanging eaves were removed and replaced by a 4-foot parapet. The wall surface was given a stucco finish.

REMODELED WAREHOUSE OF ECONOMY GROCERY STORES CORP. SOUTH BOSTON, MASSACHUSETTS

RICHMOND AND MORGAN ARCHITECTS

Haskell

Detail of entrance and staircase tower to offices on second floor.

REMODELED WAREHOUSE OF ECONOMY GROCERY STORES CORPORATION
SOUTH BOSTON, MASSACHUSETTS—RICHMOND AND MORGAN, ARCHITECTS

unloading platform nearly 900 feet long for receiving merchandise by railroad; on the street side there are numerous shipping doors which provide for the reception of merchandise by motor truck.

For the Grocery Division, which comprises the last three sections of the warehouse, "the Storage and Selection System" was used. This system divides the Grocery Division into three principal units. First, the storage portion to which the merchandise is delivered after its arrival. Second, the selection portion which is kept supplied and replenished from the storage portion, and from which the orders are selected for all the stores in the chain. Third, at the end of the selection portion and under the General Offices is the grocery shipping portion to which the selected orders are brought and loaded into truck bodies which are standing on rails waiting to be rolled onto the motor trucks for delivery to the stores. When the motor truck returns from the store it is empty and its body is rolled off onto the loading platform and a full body is put in its place and the new load is ready for delivery. In all three portions of the grocery department—storage, selection and shipping—the merchandise is handled and moved about on small platforms or skids, each 42" x 50", by means of electric storage battery trucks.

General Offices

The office area has been subdivided to provide suites of offices for principal officers and executives of the concern, an ample Board of Directors Room, and rooms for the officials who have charge of organization and of buying merchandise.

The Exterior

There are large expanses of plain stucco wall surfaces with openings for broad shipping doors. In the alterations the wide overhanging eaves were removed and replaced by a parapet four feet high, and the whole wall surface stuccoed. Crowning the walls is a band of lettering in red and gold interspersed with emblematic shields.

American Studio

A remodeled interior demonstrating use of wall material.

EXHIBITION ROOM OF THE UNITED STATES PLYWOOD COMPANY
NEW YORK CITY—ZAREH M. SOURIAN, ARCHITECT

BUILDING MODERNIZATION IN 1932

WITH SPECIAL REFERENCE TO THE INFLUENCE OF ARCHITECTS

By L. SETH SCHNITMAN

For the 37 eastern States contracts let for building modernization and alterations, exclusive of public works and utilities, during the year 1932 totaled $149,278,400. Of this amount, $88,775,200 or about 60 per cent was architect-planned. Total modernization expenditures, inclusive of public works and utilities, amounted to $167,480,800 during 1932 in the 37 States east of the Rocky Mountains and covered 21,336 individual projects indicating an average value of $7,850 per project. Of the total number of projects reported architects planned 7,823, while the remaining 13,513 projects were planned either by engineers or by builders. It is of interest to note, in this connection, that the average value per architect-planned modernization job during 1932 was $11,694, which was somewhat more than twice as large as the average value of privately-planned modernization jobs.

By far the largest volume of modernization work reported during 1932 was in commercial building types embracing banks, offices, stores and warehouses. The total modernization expenditures for these types in the 37 eastern States amounted to $44,527,200, of which amount $23,908,700 or about 54 per cent represented the value of architect-planned projects.

Considerably more than half of the architects' modernization projects were in income-producing types of buildings. Architects were responsible for larger dollar volumes of modernization work than were privately-planned improvement projects in the following important general classes of work: commercial buildings, educational buildings, hospitals and institutions, public buildings, religious and memorial buildings, social and recreational buildings, and apartments and hotels. What is more, nearly four out of every ten recorded architect-planned projects were modernization jobs.

These data serve to emphasize the present importance of modernization work to architects and their influence in improving the status of existing structures and communities. There is reason to believe that modernization work in 1933 will see an extension of the architects' influence in restoring earning power to income-producing buildings since the competition for tenants during the current year will be likely even more keen than has been the case in the recent past.

Expenditures for building modernization work in the United States during 1932 amounted to $194,030,600 as estimated on the basis of the contract figures given in the table below and the building permit records of the U. S. Bureau of Labor Statistics. During the same year the estimated total for new buildings, exclusive of public works and utilities, in the entire United States was $718,632,000; hence it is seen that modernization work during 1932 was 27 per cent as large as new work. These figures are not shown in the subjoined table but are provided as estimates to give an approximate picture of the modernization field for the entire country.

MODERNIZATION, ALTERATIONS, AND ADDITIONS IN 1932

(Included in F. W. Dodge Corporation's Contract Record for 37 Eastern States)

	Architect-Planned	Privately-Planned	Total	Architects' Percentage of Total
Commercial Buildings	$23,908,700	$20,618,500	$44,527,200	53.7
Factories	6,594,800	10,038,300	16,633,100	39.6
Educational Buildings	15,464,500	2,420,400	17,884,900	86.5
Hospitals and Institutions	6,037,900	3,172,000	9,209,900	65.6
Public Buildings	8,792,700	2,860,700	11,653,400	75.5
Religious and Memorial	5,104,500	1,506,300	6,610,800	77.2
Social and Recreational	5,101,300	2,982,400	8,083,700	63.1
Apartments and Hotels	8,414,800	5,025,500	13,440,300	62.6
One- and Two-family Houses	9,336,000	11,899,100	21,235,100	44.0
Public Works and Utilities	2,728,700	15,473,700	18,202,400	15.0
TOTAL	91,483,900	75,996,900	167,480,800	54.6
Total Number of Projects	7,823	13,513	21,336	...
Average Value of Projects	$11,694	$5,624	$7,850	...

ILLUSTRATED NEWS

Paley

Views of booths in Philadelphia exhibition, showing drawings prepared by unemployed draftsmen.

World's Fair fashions designed by architects.

TEA SET TO RAISE RELIEF FUNDS

The Architects' Tea Set, with drawings of historic buildings by Schell Lewis, is being sold for the benefit of its relief fund by the Women's Division, Architects' Emergency Committee of New York. Because of the quality of the china and the historic interest of the set, it will be sold nationally. The set is copyrighted and limited in number and is for sale only by subscription through the Women's Division, Architects' Emergency Committee, 115 East 40th Street, New York. Drawings of historic buildings included in the nine piece tea set are Federal Hall, New York; Independence Hall, Philadelphia; Mount Vernon; Bull Pringle House, Charleston, S. C.; Monticello; Library of the University of Virginia; Westover, James River, Va.; Faneuil Hall, Boston; the Santa Barbara Mission, California.

ARCHITECTURAL ACTIVITIES SHOWN IN PHILADELPHIA

Philadelphia's historical background was shown recently by a series of measured drawings of old Colonial buildings, prepared under the direction of the Architects' Committee for Relief of Unemployment. These drawings, with prints, photographs and reproductions of old engravings, were the presentation of the Philadelphia Chapter of The American Institute of Architects in conjunction with the Radio and Electric Show.

Composite plans showing the latest development of town planning by replacing gridiron streets with streets adapted to the topography of the land were also shown. These graphically explained, according to D. Knickerbacker Boyd, director of the exhibition, how natural scenery can be preserved, rain water taken off in natural creek beds instead of constructing costly and often inadequate sewers and how spacious parks can be provided all at a far less cost than by having rectangular streets.

WORLD'S FAIR FASHIONS

Gowns conforming with the design of the buildings at the 1933 Century of Progress Exposition were recently shown at a ball of the Red, White and Blue Club in Chicago. The architects who designed the costumes are John Root, Alfred Shaw, Ernest Grunsfeld, Samuel Marx, Abel Faidy, Louis Skidmore and Walter Frazier.

A LIBRARY ON WHEELS

A traveling library has been acquired by the New York Public Library, to give improved service to the outlying districts of the Bronx.

This book-truck, built by the Expando Company of Chicago, contains three compartments. In the front compartment, alongside the driver's seat, there are facilities for the charging of books to borrowers and for the registration of applicants. The rear compartment contains facilities for the discharging of books. There are two doors on the curb side for the use of the public—the one in the rear compartment being the entrance, that in the front compartment the exit.

The middle compartment is the expanding section. This section is 10 feet long and on each side contains double book shelves, four tiers of which face the outer or street side and six tiers of which face the interior. There are about 200 feet of book shelves, with a capacity of 2,000 volumes. This book-truck is designed for operation by a staff of from two to six, as needed.

The unit has an over-all length, from bumper to bumper, of 29 feet, a width of 7 feet, and a height of over 9 feet. The body alone is almost 22 feet long and over 6 feet wide.

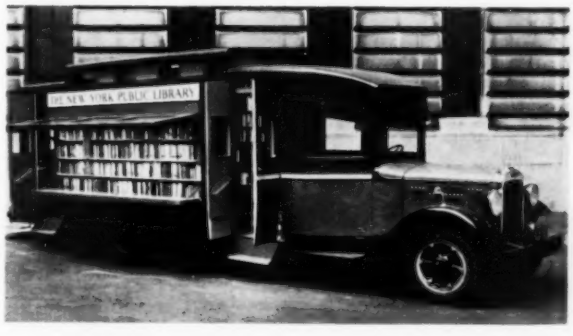
When circulating books to the public, the side walls of the middle section are expanded 13 inches on each side through a mechanical device attached to the batteries. At the same time the roof of this section is raised 11 inches. Besides the light supplied through a skylight, additional light and ventilation are obtained from the side panels which are exposed when the roof is raised. When expanded, the space on the inside available to the public for the selection of books is about 6 feet by 10 feet, sufficient room for fifteen adults.

The outer sides of the expanding section are divided into two panels, the upper of which, 33 inches wide, being hinged at the top is raised by a hand-operated device. The lower panel, 13 inches wide, is hinged at the bottom and forms a shelf when dropped. When these panels are open, the outer book shelves are accessible.

The exterior is painted in two tones of green, and a yellow belt bordered with a black molding encircles the body. The interior paint, upholstery, and linoleum are of harmonizing shades of green. Equipment and shelves are birch with a natural lacquer finish. A special generator and battery supply light; and hot-water heaters, installed both front and rear, supply heat when needed. Besides the general interior illumination, there are local lights for the convenience of the staff. The exterior shelves are also lighted.

Library truck closed and ready for travel to outlying districts.

Public enters at rear and exits in front. Books are discharged at rear, and new books selected and charged in middle and front compartments.

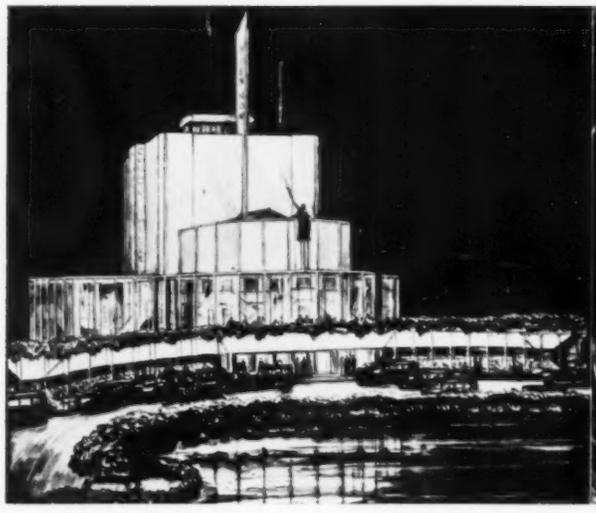


The middle compartment expands. On each side it has double book shelves with 4 tiers facing the street and 6 tiers facing the interior.

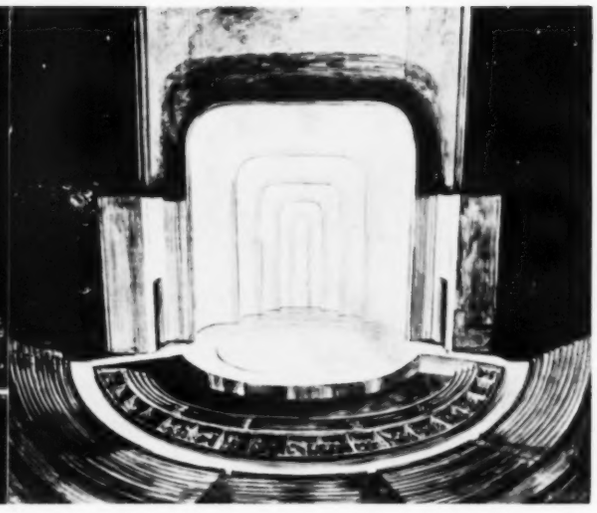
Roof as well as side walls of middle section expand. Available space accommodates 15 adults.

A. I. A. CONVENTION POSTPONED

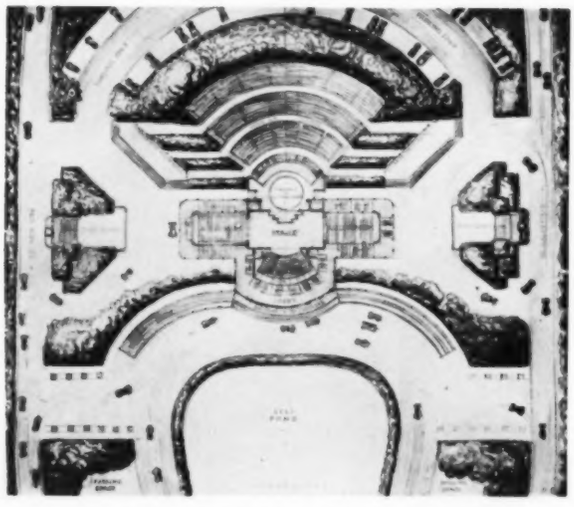
The Board of Directors of The American Institute of Architects has voted to omit the Sixty-sixth Convention, which had been scheduled for May 10, 11 and 12, 1933, in Washington, D. C. This decision was made because "the architectural profession is confronted with an economic crisis."



Automobile entrance.



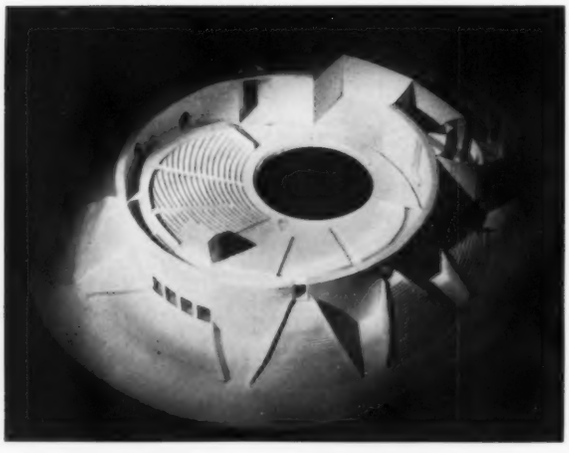
Stage and outdoor auditorium.



Plan of theater, showing parking space.

A PARK AND COMMUNITY THEATER PROPOSED FOR NYACK, NEW YORK

DESIGNED BY HERMANN ROSSE



MODEL OF A THEATER FOR INDOOR DANCES

DESIGNED BY NATALIE HAYS HAMMOND

THEATER DESIGNS TO BE SHOWN AT LEAGUE SHOW

Designs and models of theaters and recreational centers are among the exhibits to be shown at the forty-eighth annual exhibition of the Architectural League of New York, which will be held from February 18 to March 11 in the Fine Arts Building, 215 West 57th Street.

Illustrated on this page is one of the exhibits, a theater by Herman Rosse, and a surrounding entertainment park, designed by S. Helena Rosse, forming a community center for Rockland County, New York. The location was chosen to accommodate automobile traffic. At the intersection of two main arteries, the usual cloverleaf intersection has been adapted to give easy access to the community center of Nyack and adjacent towns in Rockland County.

The central part of the building consists of the stage, which has four openings shut off by fireproof partitions, counterweighted to fly up and down. On one side of the stage is an auditorium seating 750 persons for dramatic performances, lectures and the like. On the sides of the stage are similar auditoriums, each seating 750 persons.

The outdoor theater, seating about 3,500 persons, has its own stage, provided with turntable. This stage can be used as an outdoor continuation of the indoor stage (and if so desired the indoor stage can also be used as continuation of the outdoor stage). A movable switchboard makes it possible to use the indoor lighting equipment.

The basements contain exhibition and meeting rooms, and dance floor. Another dance floor is provided in the foyer of the indoor theater. Outdoor exhibition rooms or shops for the display of Rockland County products are built in a semicircle reaching out from the main entrance.

The grounds are intended to give instruction as well as pleasure and to serve as a native botanical garden and zoo as well as an athletic playground. A small open-air museum and ample picnic and parking spaces are provided.

JOINT GROUP FORMED TO GUIDE YOUNG ARCHITECTS

Formation of a Joint Advisory Committee composed of members of the four leading architectural organizations of this country to guide young architects toward uniform professional preparation for practice is announced in a progress report to the American Institute of Architects by Charles Butler of New York City, chairman of the Institute's Committee on Education.

A program of education for prospective architects, setting a minimum of eleven years of study, was outlined by Emery Stanford Hall of Chicago, secretary-treasurer of the National Council of Architectural Registration Boards, in a supplement to Mr. Butler's report. Both Mr. Butler and Mr. Hall were agreed that considerable progress has been made toward a solution of the problem of adequate preparation for young architects.

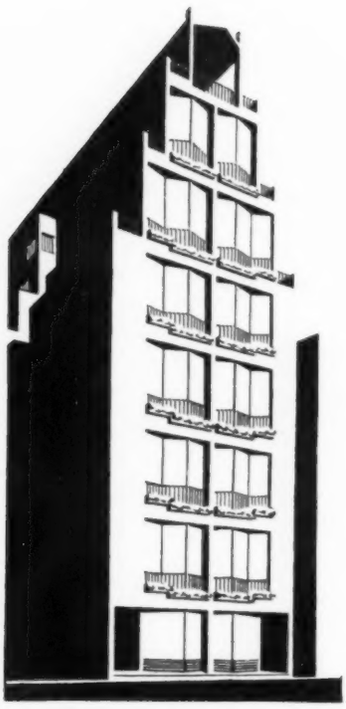
The Joint Committee includes members of the American Institute of Architects, the Beaux Arts Institute of Design, the Association of Collegiate Schools of Architecture and the National Council of Architectural Registration Boards.

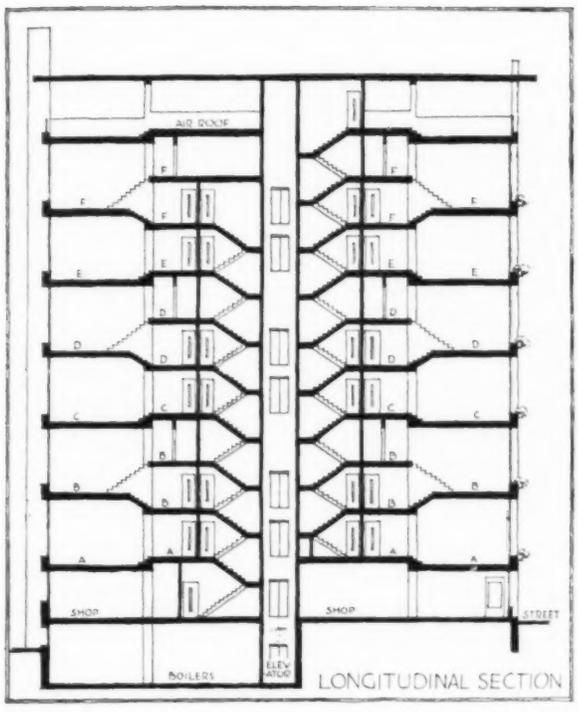
One of the proposed solutions is the employment of graduate draftsmen on part time, with salaries to be paid only for the time spent on drafting, and with an agreement by employers to permit the student to acquire field and office experience without pay.

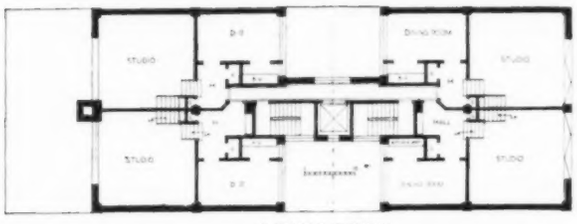
Façade of a Marionette Coffee Shop in New York City. Exterior and interior details, including all fixtures, were designed and executed by Tony Sarg in his own workshop with Floyd McCathern as associate architect.

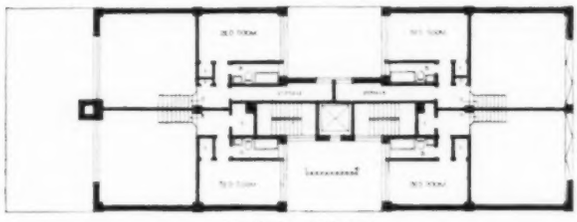
Rottschild

"Before and after" views of old New York tenements remodeled into the modern Lido Gardens Apartments at a cost of $300,000 by the Dry Dock Savings Bank. Godfrey M. Weinstein & Co., builders.









STUDIO APARTMENTS WITH SUITES ON STAGGERED FLOORS

DESIGNED BY BARRY BYRNE, ARCHITECT

ROCKEFELLER CENTER

An air view of the city within a city where John D. Rockefeller, Jr., is spending $250,000,000 for amusement and office buildings to serve 175,000 persons daily. The tall building in the center is the new 70-story RCA Building, largest office building in the world, containing 26 broadcasting studios and having a resident and transient population of 50,000 persons daily. At the left is the 31-story RKO office building. Adjoining it is the Radio City Music Hall, world's largest theater, and at the right the RKO Roxy Theater, both of which were recently opened to the public. The steelwork of the British Empire Building is shown on Fifth Avenue.

CASA GRANDE RUIN SHELTER

A new shelter for the Casa Grande Ruin located at the Casa Grande National Monument has been completed. The old covering, consisting of redwood posts and a wood frame supporting a corrugated iron roof, had served for the last 30 years but had reached a stage where replacement became necessary. In 1931 Congress made an appropriation for the new permanent protective covering.

The general type of design was suggested by F. L. Olmsted, landscape architect, who has been associated with the National Park Service in an advisory capacity. The final working drawings and specifications, as well as the supervision of the construction, have been done by the office of the Chief Engineer of the National Park Service.

The shelter consists of a steel frame supported by four steel columns anchored to massive concrete footings. The roof covering is corrugated Transite.

The entire structure has been designed to resist a wind pressure of 45 pounds to the square foot of vertical projection. This is equivalent to the vertical pressure attending a 100 mile per hour hurricane. At the ridge of the roof there is a louvered ventilator approximately 2 feet high, 10 feet wide and 32 feet long. The purpose of this opening in the roof is to relieve this part of the structure of upward thrust caused by upward wind pressure.

Four corrugated wire skylights in the roof provide some direct sunlight on the ruin walls. Around the eaves is an 8" x 10" copper gutter. In addition to the main lightning conductor for the building, each steel column has a ⅜" copper ground connected to a copper plate ground.

A total of 114 tons of steel was used in the structure. Each column weighs six tons and the largest trusses each weigh approximately six tons. The roof measures 98 by 82 feet. Since the ruin is only 58 by 42 feet this should give ample protection. The entire steel portion of the shelter is painted a sage green.

Casa Grande Ruin and the new shelter—a photograph taken by Robert H. Rose, naturalist.

Nickel

Close-up view of ruins showing the 600–800-year-old plaster walls.

NEW EXPLANATION GIVEN FOR STUFFY ROOMS

Sir Leonard Hill, English physiologist and writer on public health subjects, finds that certain heat rays (infra-red rays) given off by dark or dull-red sources of heat cause the nostrils to contract and thus interfere with breathing. He believes that this is the chief reason for the stuffiness experienced in an overheated room.

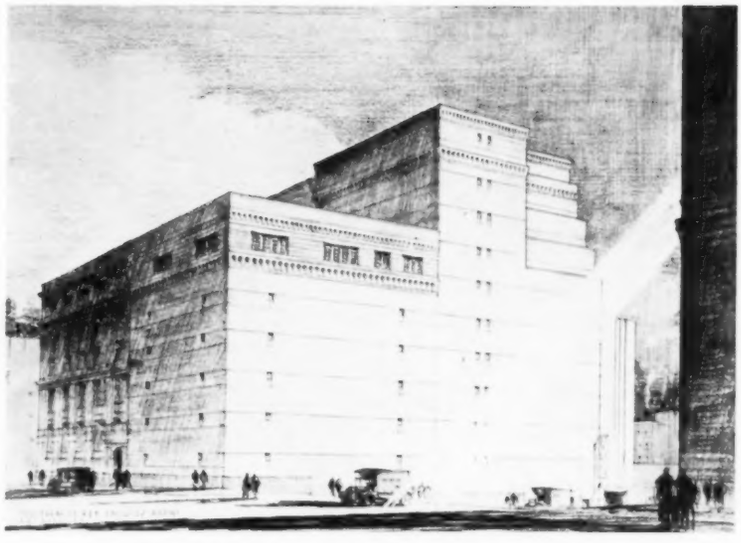
In a lecture at the recent Public Health Congress in London, according to Science Service, he showed that this effect is not due to a direct action of the heat upon the nostrils, but that it is a reflex effect from the sensory nerves of the skin. The action of these particular heat rays is especially marked in persons whose breathing is already partially obstructed, those with a deflected septum of the nose, for example, or a person suffering from catarrh, asthma or hay fever. The effect can be neutralized by fanning the skin of the face with an electric fan, or by the action of certain other rays that are given off especially by luminous sources of heat. They may also be absorbed by water vapor and he suggests that this is the explanation of the efficacy of a bowl of water placed in front of a heater.

From experiments made at Bedford College, London, he found that 60 per cent of the persons examined experience difficulty in breathing when exposed to heaters that give off these "nose-shutting" rays and that in over 25 per cent of the cases the obstruction to breathing was so marked that it could be demonstrated in records of the respiration made upon a suitable apparatus.

PLANNING THE BREWERY

PART TWO—THE STOCK HOUSE

By JAMES B. NEWMAN
of the
Firm of Ely Jacques Kahn, Architects



JACOB RUPPERT BREWERY STOCK HOUSE

The proposed revival of the brewing industry, after some fourteen years of Prohibition, finds some plants in such condition that they will have to be completely rebuilt, some which will require rehabilitation, many which will require some modernization and extension. It is interesting to note that a great industry which was compelled by legislation to lie relatively dormant through the great boom period of the post-war decade of expansion and technological development was thereby probably saved from the overdevelopment of plant so common to that period. While the industry marked time in this country, it did not do so abroad. It is obvious, therefore, that in the rehabilitation of our own brewing industry the work abroad, especially that of Germany and its technicians, will receive careful study.

In many cases in the past the production of beer was relatively personal, the work of the superintendent and the brewmaster, precisely as the finished products in other lines were formerly more the work of craftsmen than they are now. This situation for various reasons held in a measure to the Prohibition era. Now, with the resumption of legal brewing on a large scale in view, advantage will be taken of the decade's technological developments. The manufacturing and processing of the beer itself with various possible side lines—such as the production of malts, syrups, etc.—with the attendant problems of efficient plant, economical power production, refrigeration, bottling on a large scale, maintenance, marketing and distribution, introduce problems of mechanical and chemical engineering and business administration.

The Ruppert Brewery

The Jacob Ruppert Brewery, well over half a century old, is in the mid-Manhattan Hell Gate section of New York City, on relatively high-priced ground aggregating nearly two city blocks in area, a locality now facing encroachment by relatively high buildings. It is natural that, in replacing obsolete sections of a brewery and increasing its capacity, the development will be with units of substantial height.

The new stock house is such a unit. It occupies a plot approximately 87 feet by 200 feet; it is eight stories and basement in the front half, matching in height the adjoining brew house, and eleven stories with basement and sub-basement in the rear, half matching in height the adjoining stock house. It has a capacity of about 220,000 barrels, besides providing for an extension to the general office.

Insulated Construction

The building has a structural-steel frame, with cinder concrete arches, and a free-standing brick inclosing wall entirely independent of the building framing system except for stiff ties to the floor system at the columns along the short side of the floor bay, and at the columns and one intermediate point along the length of the floor bays. The entire building, except the general office extension on the top floor of the eight-story section, will be kept at or slightly below the freezing point, making necessary the insulation of all building walls, floors and roofs which adjoin nonfreezing temperatures.

The insulating medium is cork, and envelope or slotted construction has been used. The walls are set approximately 5 inches clear of the inside framework, and a cork lining 4 inches thick, cemented to the walls, forms a continuous lining from the first floor to the top, unpierced except by the anchors and by some unavoidable framing at the stair units and at the group of small setbacks in the upper street wall at the rear of the building. Cork insulation, 6 inches thick, is carried across the roof, under the fill, on the eleven-story section, and under the eighth floor of the eight-story unit, and across the basement floors

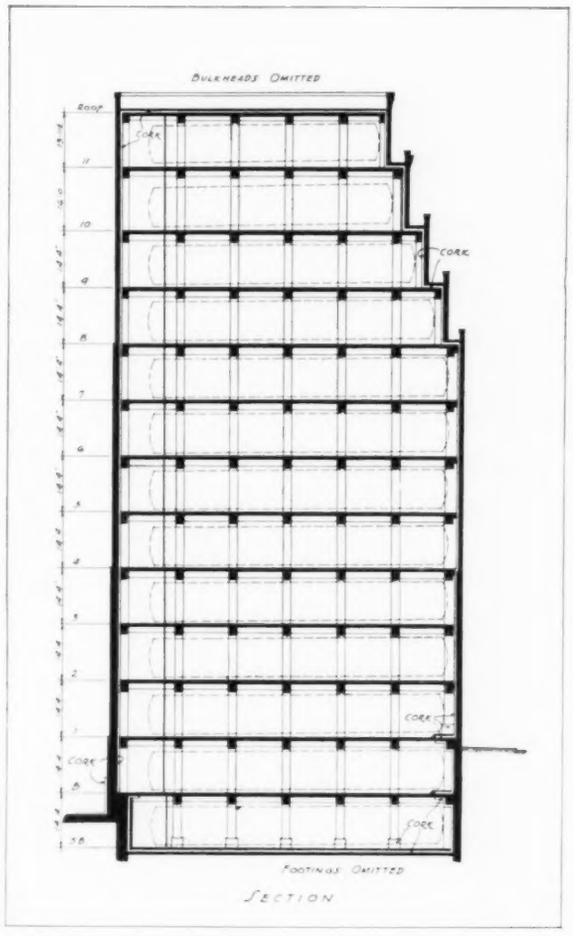
which come into contact with the ground. Where the basement columns pass through the cork floor, and where occasional beams or girders puncture the cork envelope, cork sleeves some three feet long are formed.

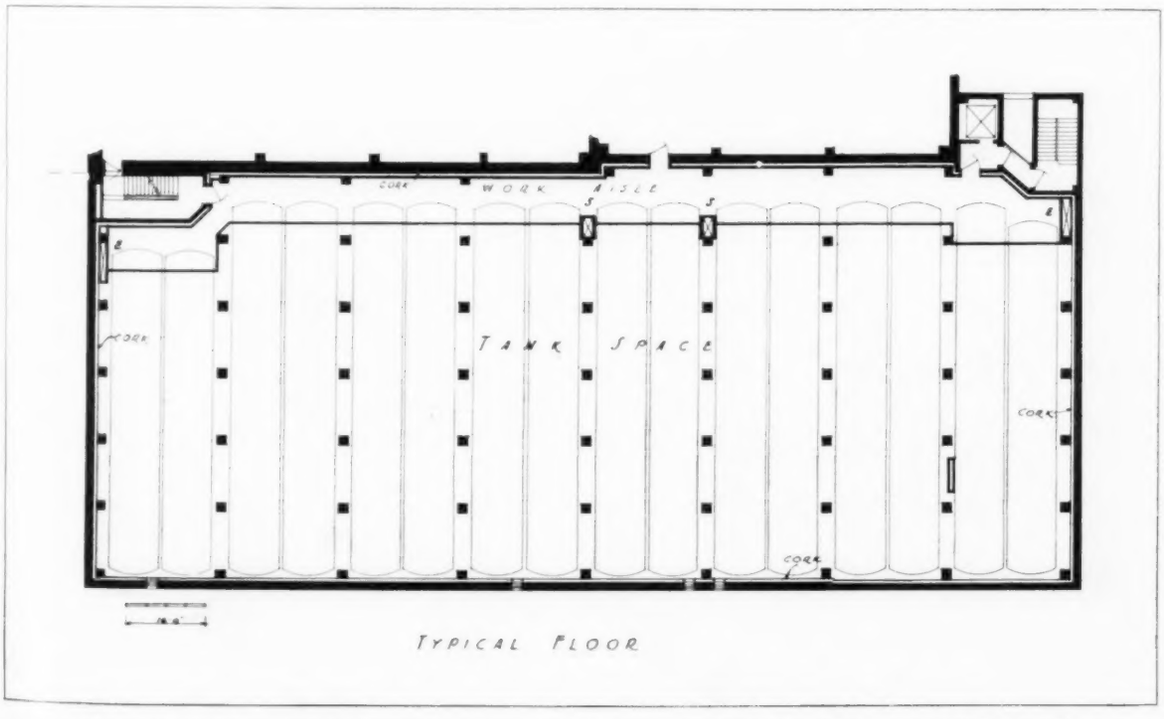
In the basement and sub-basement the columns in the outer lines directly adjoin the foundation walls, to avoid having them set too far out in the upper stories. The cork in these cases runs around the columns and out on the floor and ceiling forming insulating laps, as indicated in the sectional drawing.

Formerly in refrigerator buildings the cork was generally secured to the wall by a cement binder, but it is now more common practice to set the cork in asphalt which is more waterproof. Asphalt has not the same strength as the cement, and usually in high stories, and in multi-storied envelope construction such as this, it is common now to use a continuous horizontal anchoring strip midway in each story as insurance against the cork working free of the walls.

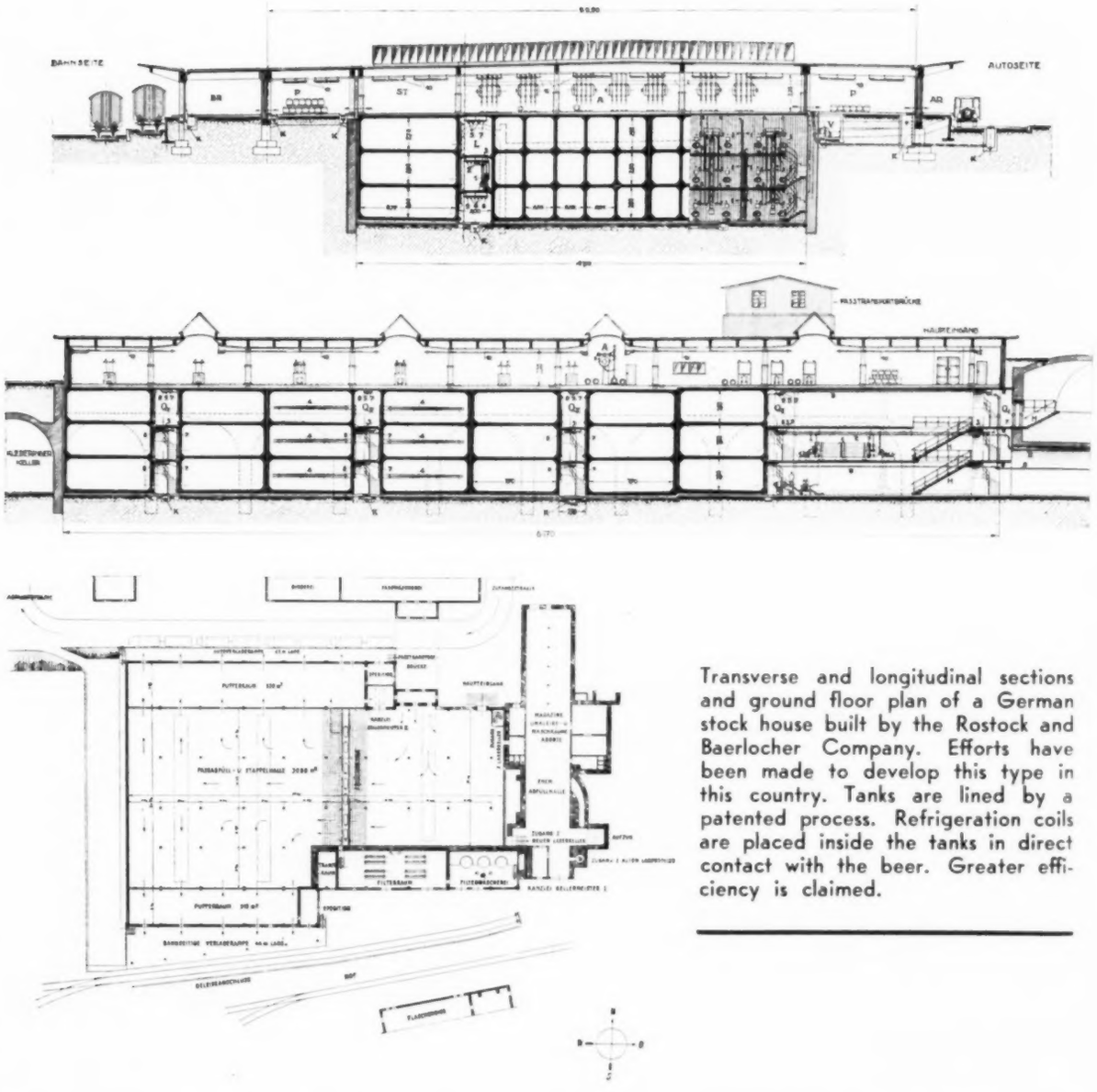
Tank Space

The building has been designed for horizontal circular steel tanks of the Pfaudler type, 10 feet inside diameter, two to a bay. The tanks are assembled in place, and are about 75 feet long. Tanks longer than these have been assembled and are in common use, but in extreme lengths there is more troubles at the gasketed joints due to the slight distortion from a circular to an oblate section when filled. They are pitched to the front





Floor plan of the Jacob Ruppert Brewery stock house, designed by Ely Jacques Kahn, architect. The steel tanks are 75 feet long and 10 feet in inside diameter; they are assembled in place. The sectional view (above) illustrates the free-standing insulated brick wall construction.



Transverse and longitudinal sections and ground floor plan of a German stock house built by the Rostock and Baerlocher Company. Efforts have been made to develop this type in this country. Tanks are lined by a patented process. Refrigeration coils are placed inside the tanks in direct contact with the beer. Greater efficiency is claimed.

working end, and this item must be considered in determining the story height. When tanks are emptied there is some gas discharge and there is moisture in the air due to washing and flushing of the working space. To keep these vapors and dampness from spreading through the entire tank room, the superintendent of this brewery uses a solid screen from floor to ceiling tightly fitted around the tank heads.

All activity accordingly is confined to this work aisle which is given only such width as to insure efficient working conditions. The aisles are mechanically ventilated by refrigerated conditioned air which carries off the moisture or whatever gas there may be and at the same time keeps the room at the proper temperature. The air is supplied through ducts at the center of the aisle and exhausted at the ends. The air is recirculated with an admixture of fresh air. The entire tank space behind the screen is refrigerated by a brine circulating system. A direct expansion ammonia system was considered but for several reasons the brine was selected. The even temperature in this space, and the reduction of pipe frosting to little or nothing is greatly facilitated by the aisle screen. While the tanks are close together on the diametral section, there is enough space to walk between them, due to their large radius, by entering through access doors in the aisle screen. Small double windows, providing triple glazing, have been installed at a few points to provide some natural ventilation of the tank space when not in use, should this ever be necessary.

The floor finish in the tank space is cement, as no moisture is present, but in the work aisle asphalt mastic is to be used except for a small installation of quarry tile. Floors are pitched to numerous drains. A special sanitary bell trap has been selected because experience shows that freezing water does not crack the fitting. Dry pipe

drainage to a collecting tank is not feasible for sanitary reasons. All running traps in the house drainage lines to street sewers have been placed in vaults outside the building lines to avoid freezing.

All electric wiring is lead covered and in galvanized conduit. The conduit is exposed in the tank space, and concealed in the work aisle. All conduits are of large size, contain relatively few wires, and are provided with numerous junction boxes, and where they pass through the walls from cold to warm spaces they are internally sealed to prevent condensation. All of these precautions are taken to overcome various difficulties due to condensation in the conduits. The installation must be so arranged as to provide for easy replacement of wires in all such buildings. All electric fixtures, plugs, etc., are of the exceptionally heavy duty brewery type.

Steel tanks of the type described have been used in this country for many years. They have a glass enamel lining, accomplished through baking after troweling on the raw mixture. While the lining is necessarily fragile and may be cracked through distortion or unavoidable accidents, preparations are available by means of which the trouble may be remedied. When it is considered, however, that the tanks and other equipment in such buildings cost more than the buildings themselves, it is obvious that the cost of tanks is a substantial component of the cost of a glass of beer and much study will be given to consideration of means of reducing this cost to the minimum consistent with quality. Wooden tanks and vats are still being used, and no doubt will answer the purpose in some installations. Iron and steel have been used with various interior coatings to say nothing of trials with copper and aluminum.

European Stock Houses

Many concrete stock houses have been constructed in Germany and other European countries. A plan of one of these built by the Rostock and Baerlocher Company is shown on this page. This company has developed its own technique as the result of an extensive experience. Efforts have also been made to develop this type of stock house in this country, and it will be interesting to note how it shapes up under our various laws and labor conditions. In the plan shown, the units are relatively small, as the problem is simplified. Great care is taken in the design and construction to reduce distortion and cracking to a minimum. These tanks are lined by a patented process and this lining takes care of such cracks as may occur. It will be noted in the longitudinal section that the refrigeration coils are placed inside the tanks in direct contact with the beer. Owing to the more efficient use of the building, it is claimed that less building need be constructed for the same capacity, that refrigeration is less because not only is it more efficient being in direct contact with the beer but also there is less building to cool, and finally that less power is used because of the decreased refrigeration. The brewers have been well acquainted with this construction and its claims for a long while, and the merits of installations on this basis will doubtless receive due consideration in future developments where conditions appear to warrant it.

Some brewers have also installed the cooling coils directly in the steel tanks and then insulated them, allowing the building itself to take its normal temperature as determined by outside conditions, etc. In this case building construction is simplified somewhat and windows may also be used for natural light and ventilation without causing refrigeration losses.

Vertical Tank Stacks

Ruppert engineers have devised a steel tank arrangement which, if it proves entirely feasible, will

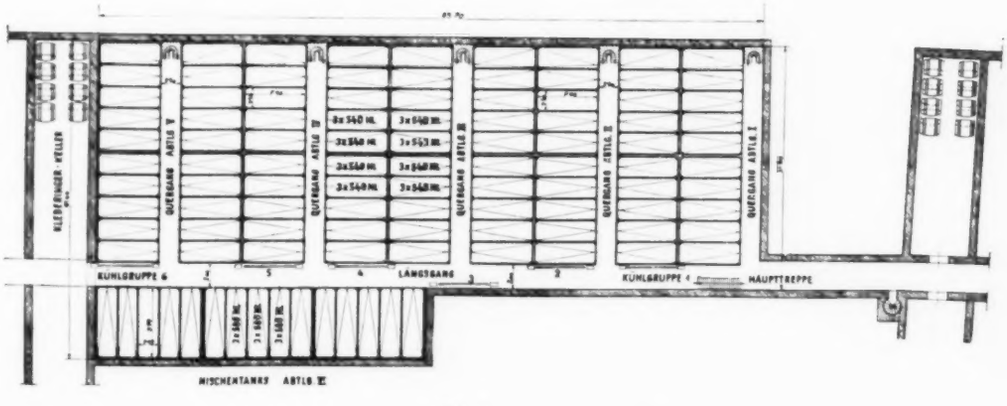
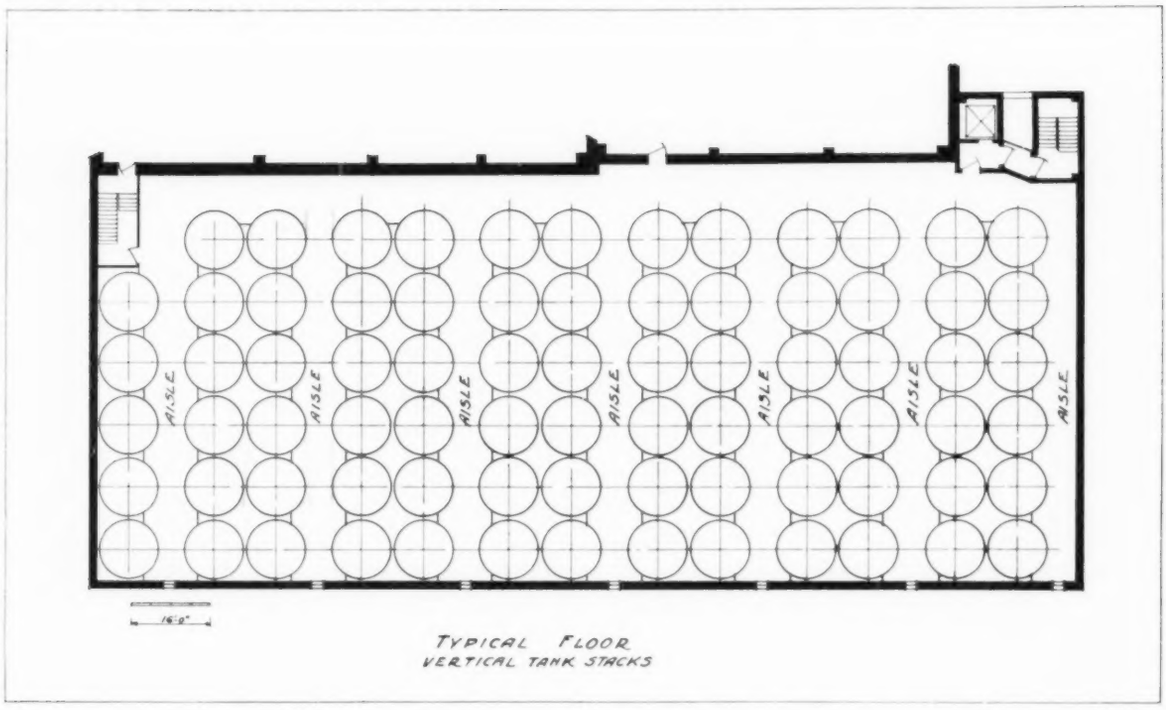


Abb. 2.

Floor plan of a German stock house built by the Rostock and Baerlocher Company, showing arrangement of tanks. The stock house is constructed of reinforced concrete.



ALTERNATE PROPOSAL FOR RUPPERT BREWERY STOCK HOUSE SHOWING USE OF VERTICAL TANK STACKS, 12 FEET IN DIAMETER. ELY JACQUES KAHN, ARCHITECT

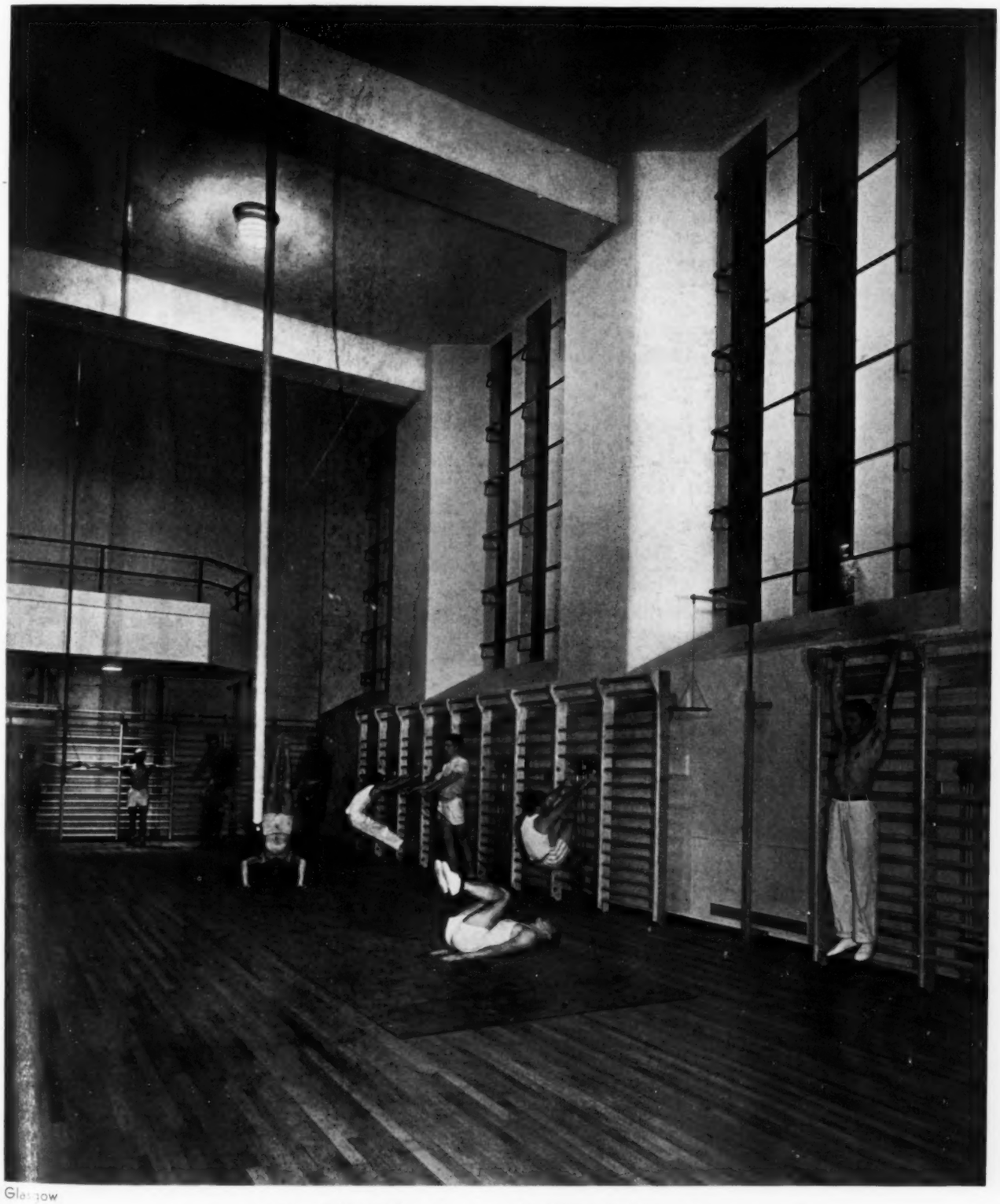
also cut down building cubage. This scheme basically consists of turning each of the steel tanks on end, installing them as large standpipes resting on their own foundations and with the height determined by the desired capacity. Each of the standpipes would have to be divided by horizontally placed diaphragms designed somewhat the same as tank end sections, placed about 10 feet vertically on center, because this depth is approximately the maximum beer can have in storage without absorbing too much gas. This would determine the story heights at 10 feet also, the floors being dropped somewhat below the tank bottoms.

To show the effect on cubage, the plan of the new stock house is shown herewith with vertical tanks 12 feet in diameter, the arrangement being determined by plant conditions. Allowing for the same sub-basement in the rear, nine stories and basement, a 10-foot height for tanks would give the same capacity as provided in the adopted plan, and there would be a reduction in cubage of around 600,000 feet. The tank aisles would carry no appreciable live load and could be steel plates with light stiffeners welded to the tanks, or carried by light struts, the plates being covered with mastic if desired. The tanks, of course, would be more costly because of the diaphragms, gauges, valves, etc., for each 10-foot section in place of only one set to a tank, and because of the greater average thickness of metal. The working at the joint gaskets would be eliminated. The tanks could also be readily insulated in groups. While there is no fire hazard in such a structure, construction of this type would not be approved in New York City except by special grant unless all supporting steelwork should be fully fireproofed. For a large brewery it also introduces a great many independent tank units with which to work. Some brewers, however, prefer small units independently insulated because units temporarily not desired can be left out of action; likewise, if a tank of beer is occasionally spoiled the loss is smaller. The merits of installations on this basis will no doubt also receive due consideration in future installations where conditions appear to warrant it.

Stainless Steel Tanks

Stainless steel has received much favorable comment both at home and abroad. The material has been used in continental breweries for mash and fermentation vats, storage and transport vats, for barrels, etc. The 18-8 alloy widely used in this country has been slightly modified to cut down the danger due to intergranular corrosion resulting from a certain breakdown of the material passing through a temperature time cycle in welding. While all problems in connection with its use have not been solved, American brewers are certainly going to experiment widely with it. One of the deterrents to its use, obviously, is its high cost.

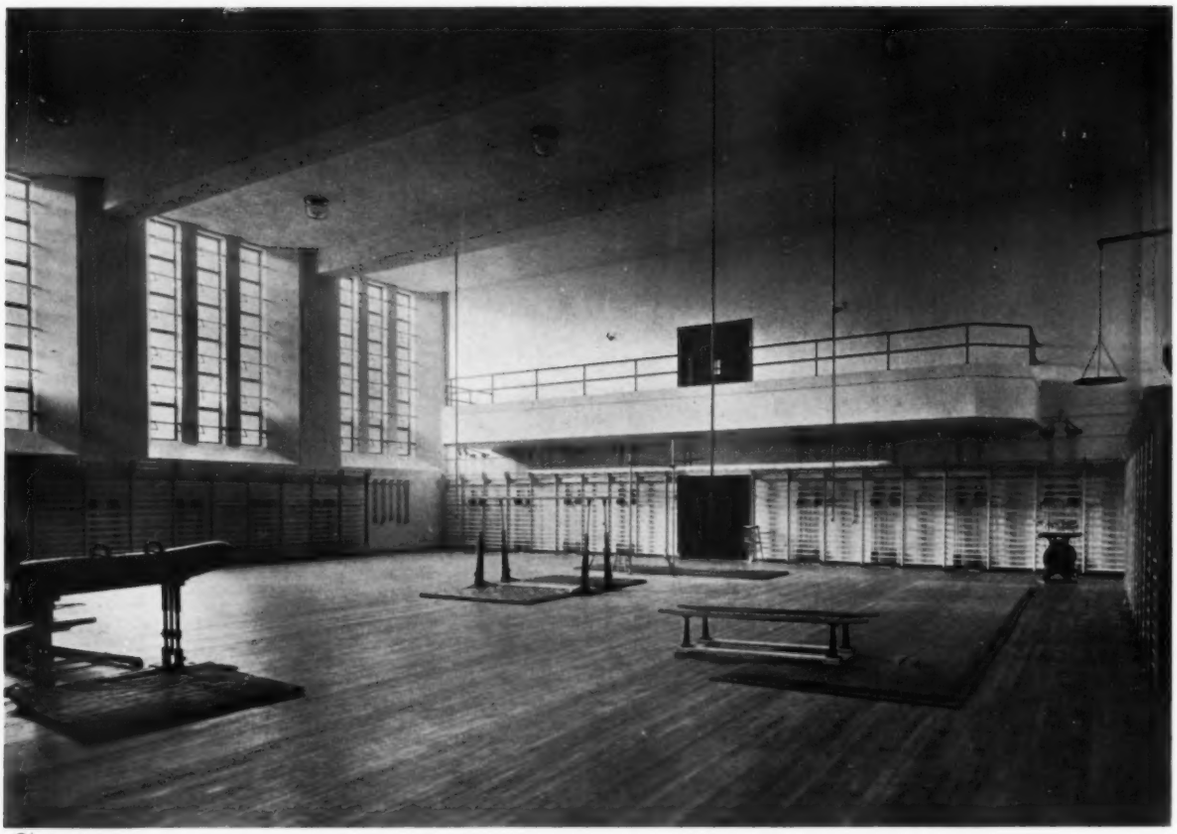
It might be noted in this connection that application for a patent has been made on a concrete tank to be built with a light gauge stainless steel sheet lining, the tank being first assembled, and stiffened with ordinary carbon steel structural members serving also as a form for the concrete.



Glasgow

A corner in the Body Building Room of the Payne Whitney Gymnasium, at Yale University. John Russell Pope, Architect.

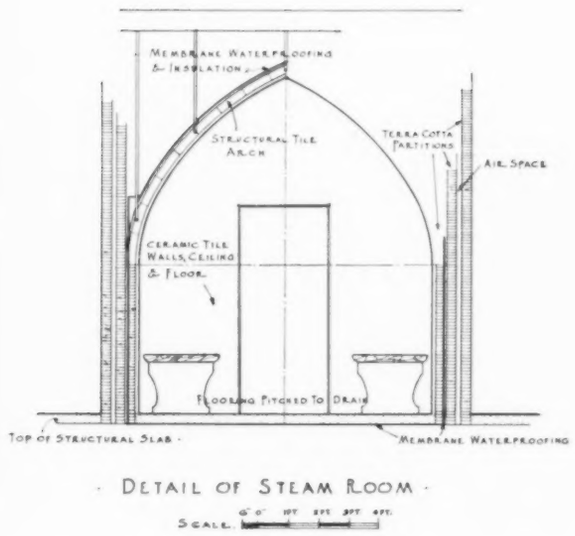
PLANNING THE GYMNASIUM



Glasgow

The Body Building or General Exercise Room.

A typical shower room. Floors are tile and walls marble. All exposed metal is chromium-plated.



DETAIL OF STEAM ROOM

SCALE.

Steam rooms are competely tiled and ceilings are vaulted to avoid condensation drip.

PAYNE WHITNEY GYMNASIUM, YALE UNIVERSITY—JOHN RUSSELL POPE, ARCHITECT

A UNIVERSITY GYMNASIUM AND ATHLETIC CLUB

A CHECKLIST OF PLANNING REQUIREMENTS

By I. D. MATTHEW of the Office of John Russell Pope, Architect

The following program has been organized and condensed from the notes on requirements and arrangements made by the architect during the development of the final plans for the Payne Whitney Gymnasium and Ray Tompkins House.

Except where accommodations are prescribed by governing associations or standard practice, they have been determined by individual considerations and consequently they should be accepted as applying primarily to an athletic building serving the needs of an institution analogous to Yale University in organization and attendance.

The schedule is not complete in mechanical equipment, construction and finishes, furniture, and gymnasium apparatus. These items have been mentioned only where they demand special considerations of space or arrangement or where it is felt that the usual freedom of choice in these matters should be restricted.

I. Physical Education

1. *General Exercise Room*:
Floor area—4,000 square feet. Ceiling height—27 feet.
Visitors' balcony at one end. Apparatus strips on 4 walls for stall bars and chest weights. Anchorage points for horizontal ladder and customary floor equipment.
2. *Corrective Exercise Rooms* (seven):
Floor area—1,000 square feet each. Ceiling height—20 feet. Visitors' balcony at one side of 4 rooms. Two pairs of rooms separated by folding partitions. Apparatus strips on 4 walls of 5 rooms. Two rooms equipped with mirrors for special classes.
3. *Auxiliary Rooms* (two) for special classes:
(Used also for Basketball. See Section VI—1.) Floor area—4,600 square feet each. Ceiling height—20 feet.

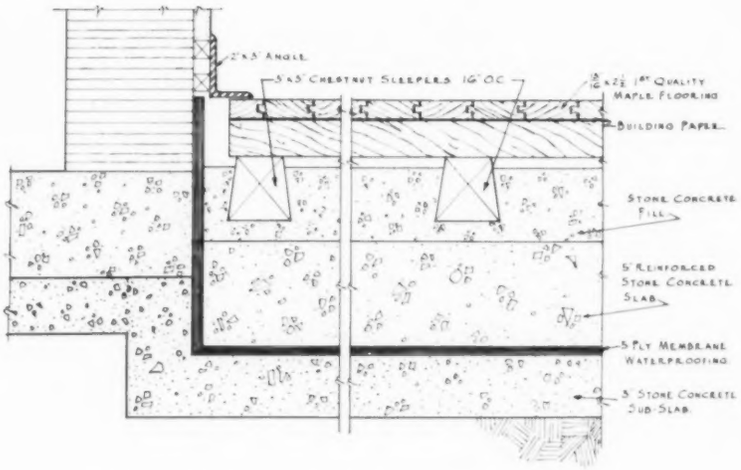
General notes 1, 2 and 3:
Floors—maple. Walls—hard plaster. Wainscots—cement plaster 7 feet high. (Note: Window sills above wainscots.) Ceilings—acoustical treatment. Natural light by windows or skylights. Artificial light—8-12 foot-candles.

4. *Examination and Photography Department*:
(a) Examination and Photography Room, 18′ x 24′.
(b) Dark Room, 8′ x 12′.
(c) Printing Room, 12′ x 16′.
5. *Offices*:
(a) General Office, 16′ x 24′, with space for files and records and a fireproof vault.
(b) Physical Director's Office, 15′ x 20′.
6. *Staff Rooms*:
(a) Staff Dressing Room, 16′ x 16′, with lockers, showers and toilet adjoining.
(b) Staff Conference Room, 15′ x 25′.
7. *Surgery*, 25′ x 28′, with wood dividing screen.
8. *Special Baths Department*:
(a) General Rubbing Room, 16′ x 40′. 16 rubbing tables. Floor—quarry tile. Walls and ceiling—cement plaster.
(b) Massage Room, 15′ x 15′. Marble rubbing slabs. Floor—ceramic tile. Walls and ceiling—cement plaster. 6′ tile wainscot.
(c) Hot Room, 15′ x 15′. Temperature—170°. Floor, walls and ceiling—ceramic tile.
(d) Steam Room, 10′ x 15′. Marble benches. Room temperature—130°. Floor, walls and ceiling—ceramic tile. Ceiling vaulted to avoid drip.
(e) Rest Room, 16′ x 40′ (18 cots).
(f) Toilet, Shower and Drying Rooms. 10 showers, 4 urinals, 2 water closets, 2 lavatories, 2 foot tubs.
9. *Solaria*:
(a) Sun Room, 15′ x 65′. Southern exposure. Roof and one side inclosed in Vitaglass.
(b) Open Sun Deck on tiled roof. Area—2,000 square feet.
10. *Supply, Repair and Storage Rooms.*
11. *Jogging Track*—outdoors on roof. Length—1/12 mile. Width—10 feet. Banked on turns. Surface—asphalt planking.

II. Boxing, Fencing and Wrestling

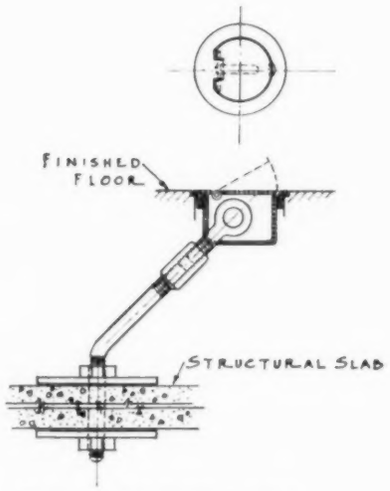
1. *Amphitheater* (See Section VI—1).
Portable equipment for exhibitions of boxing, fencing and wrestling.
2. *Boxing Room*:
Floor areas—4,000 square feet. Ceiling height—25 feet. Visitors' balcony at one end. Removable standards and guys for five 20-foot rings. Anchorage in balcony soffit for sand bags at 8-foot centers. Wood strips for attaching wall pads.
3. *Punching Bag Room*:
Floor area—1,000 square feet. Ceiling height—10 feet. Insulated platform for suspending pneumatic striking bags at varied heights.
4. *Fencing Room*:
Floor area—4,000 square feet. Ceiling height—25 feet. Visitors' balcony at one end. Padded leather targets on walls. Built-in foil racks. Floor—cork carpet laid over finished

CONSTRUCTION DETAILS
of special problems in gymnasium construction taken from the architect's working drawings.



· Detail of Gymnasium Floor on Earth ·

Scale



· Guy Anchor for · · Gymnasium Floor · · Equipment ·

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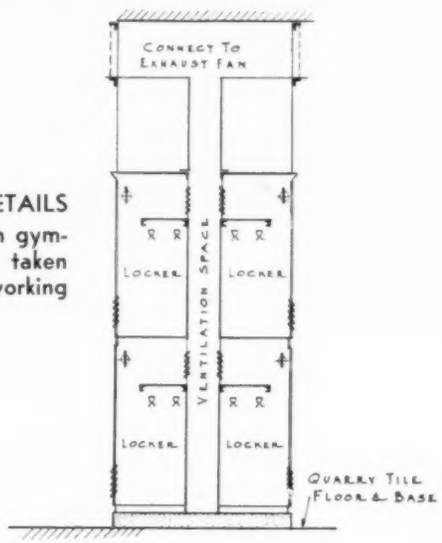
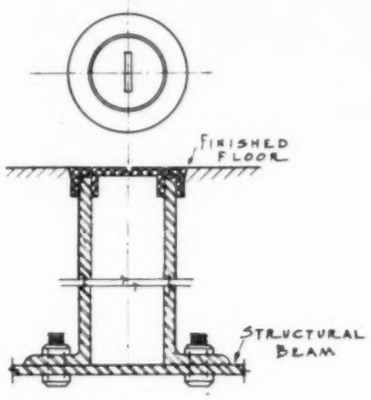


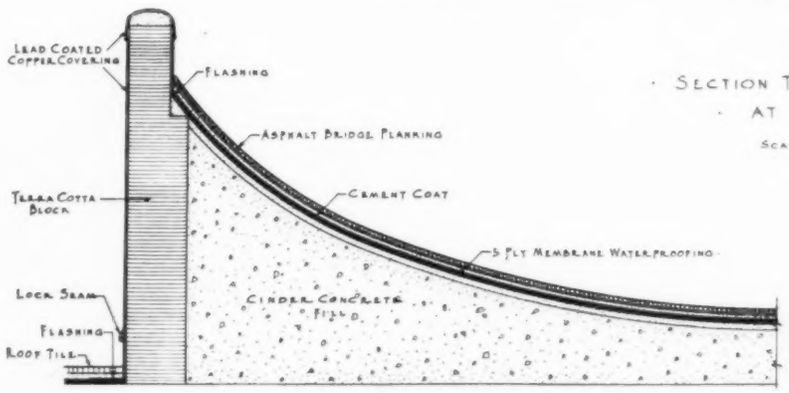
· Section Thru · · Typical Locker Bank ·

Scale 0 1FT. 2FT. 3FT. 4FT.



· Floor Socket for · · Tennis Net Standard ·

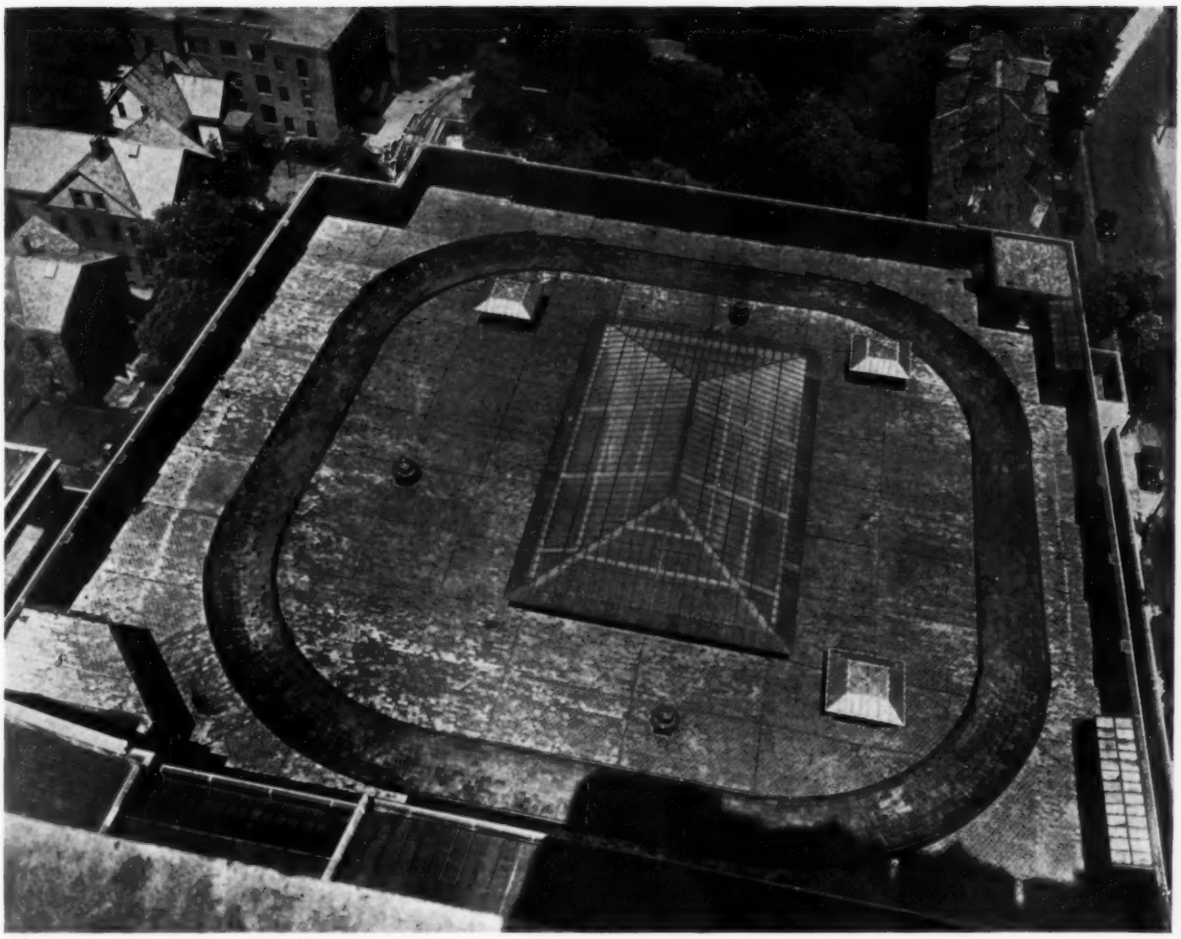
Scale 0 1 FT.



· Section Thru Outdoor Jogging Track · · at High Point on Course ·

Scale 0 1FT.

PAYNE WHITNEY GYMNASIUM, YALE UNIVERSITY—JOHN RUSSELL POPE, ARCHITECT



Glasgow

Outdoor Jogging Track on the Roof of the Amphitheater Unit.
Payne Whitney Gymnasium at Yale University—John Russell Pope, Architect.

maple flooring (for resiliency). Strips 13 feet long and 3 feet wide in alternating shades of light and dark brown to serve as fencing lanes.

5. *Wrestling Room*:
Floor area—4,000 square feet. Ceiling height—25 feet. Visitors' balcony at one end. Wood strips for attaching wall pads.
6. *Offices* (three) for Boxing, Fencing and Wrestling coaches: Each 12′ x 25′.
7. *Toilet Rooms* (three):
Each room contains 3 urinals, 2 water closets, 2 lavatories.

General notes 2, 3, 4 and 5: Same as for sections I-1, I-2, I-3.

III. Rowing

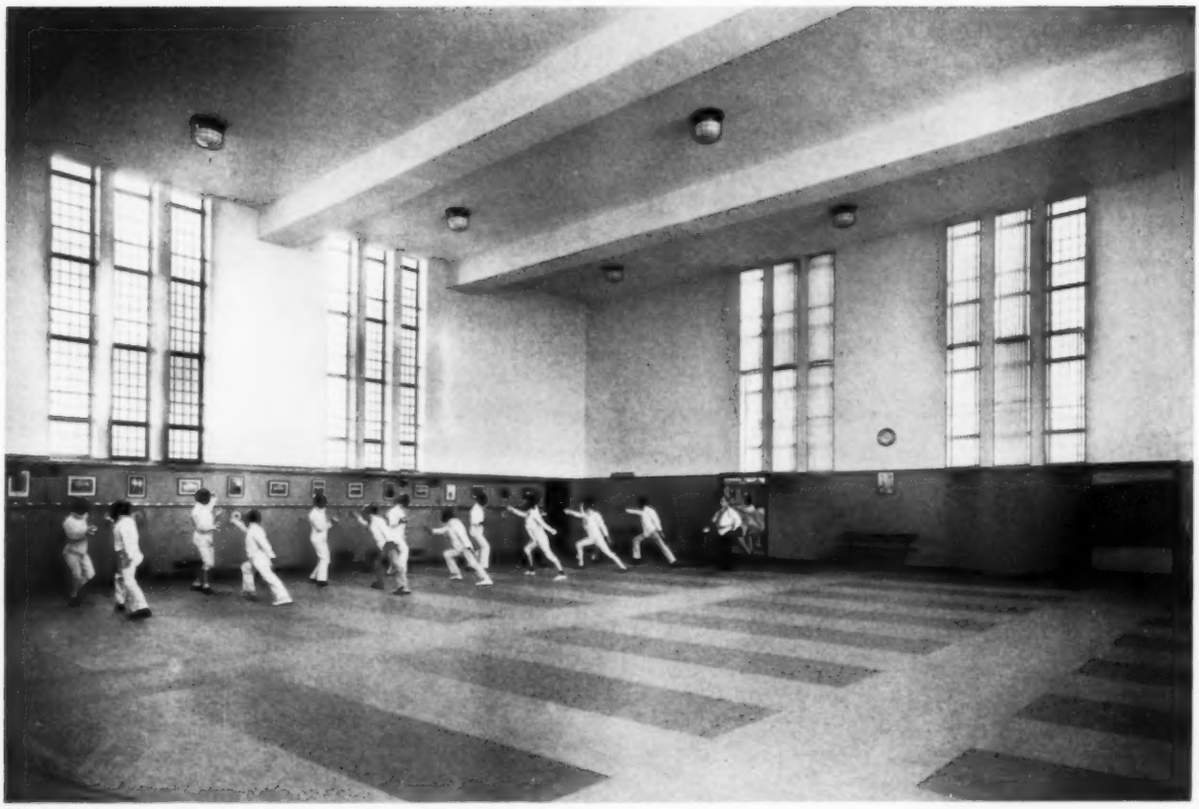
1. *Rowing Rooms* (three):
Floor area—5,000 square feet each. Ceiling height—22 feet. Visitors' balcony at one end. Concrete rowing tanks, 60′ x 23′ 6″, with concrete boat and electric pumping equipment for propelling the water. Space for standard mechanical rowing machines. Floor—quarry tile. Walls and Ceiling—acoustical treatment. Wainscot—buff brick, 6 feet high. Natural light by windows and skylights.
2. *Office for Coach*, 15′ x 25′.

IV. Squash and Handball

1. *Singles Squash Courts* (twenty-six):
Each 18′ 6″ x 32′. Ceiling height—19 feet. Spectators' galleries overlooking 4 courts.
2. *Doubles Squash Courts* (two):
Each 25′ x 45′. Ceiling height—22 feet. Spectators' gallery overlooking 1 court.

General notes (1) and (2):
Floors and walls—maple, constructed and finished in accordance with standard specifications of National Squash Tennis Association and United States Squash Racquets Association. Telltales—removable, so courts may be used for handball. Lighting—artificial (10 to 25 foot-candles). Where conditions permit an indirect system is recommended. Ventilation—forced supply through telltale. Exhaust at ceiling. Buzzer system indicating periods of play.

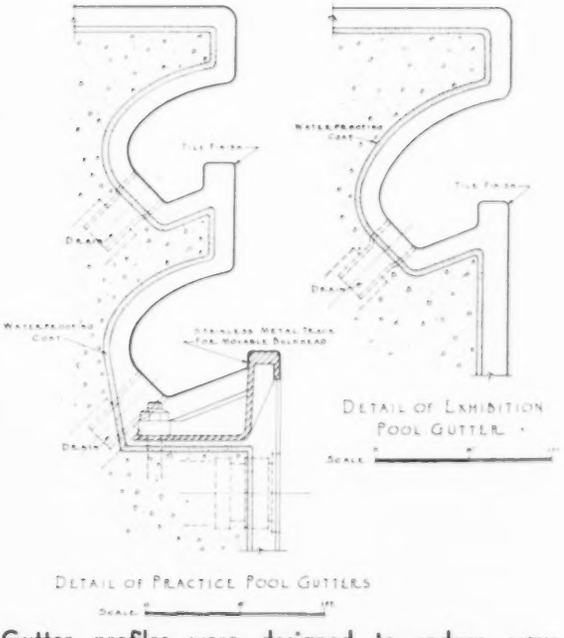
3. *Handball Courts* (eight):
Each court 22′ x 46′. Ceiling height 22 feet.



Glasgow

The Fencing Room. Floors are cork carpet with fencing lanes in alternate strips of light and dark brown.

Diving apparatus in the practice pool. Frames may be detached at the floor leaving the deck unobstructed.



Gutter profiles were designed to reduce wave action and backwash. The lower gutter in the practice pool permits the water level to be lowered one foot.

PAYNE WHITNEY GYMNASIUM, YALE UNIVERSITY—JOHN RUSSELL POPE, ARCHITECT

Spectators' galleries overlooking 3 courts. Floors—maple, similar to squash courts but finished with linseed oil and turpentine only. Walls — cement plaster, enameled light buff. Lighting—same as for squash courts. Ventilation—supply and exhaust in upper walls and ceiling. Buzzer system indicating periods of play.

4 *Office and Supply Room* controlling entrance to courts.

V. Golf and Polo Practice

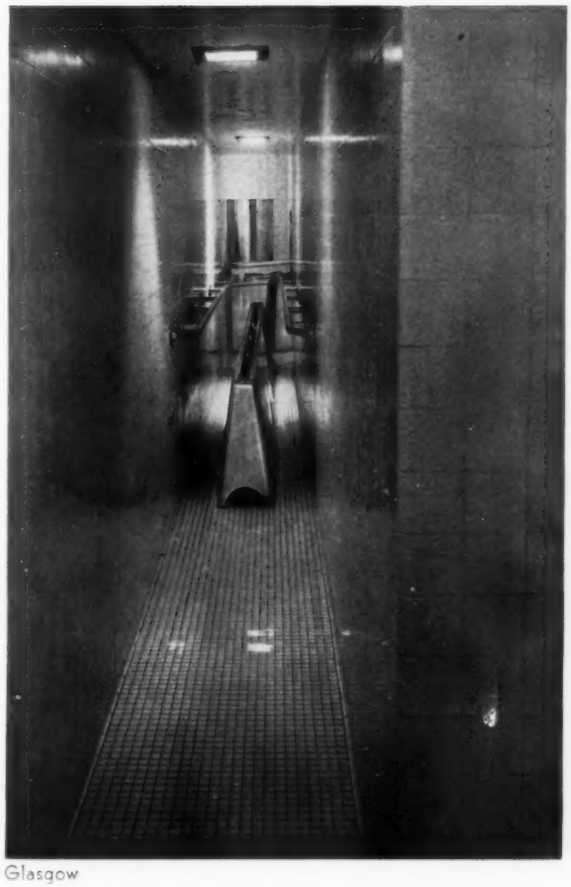
1. *Golf Galleries* (two):
Each 14′ x 40′. Ceiling height—20 feet. Floor —asphalt planking with grass mat at tee. Walls —cement plaster. Canvas driving nets suspended free from walls.
2. *Polo Cages* (two):
Each 16′ x 22′. Ceiling height—22 feet. Floor —maple, dished. Walls—cement plaster. Wainscot—padded canvas, 10 feet high. Dummy horse fixed at center of floor. Mirror with wire guard attached to rear wall. Spectators' gallery overlooking 1 cage.

General notes (1) and (2):
Lighting and ventilation similar to Handball Courts. (Section IV-3).

3. *Office and Control Room.*

VI. Basketball and Tennis

1. *Practice Basketball Rooms* (two):
(Used also for special exercises. See section I-3.)
2. *Amphitheater*:
(Used also for Boxing, Fencing and Wrestling exhibitions. See section II-1.)
Playing floor, 95′ x 125′, maple. Permanent seating for 1,600 spectators.
(a) *Basketball.* Two practice courts (transversely on floor). One exhibition court (longitudinally on floor).
Note: Maximum court size—94′ x 50′; minimum—60′ x 35′; desirable clearance on all sides—10 feet. Folding backstops for 3 courts.
(b) *Tennis.* Two courts for singles or doubles play.
Standard size—each 36′ x 78′ with 21′ overrun at ends. Floor sockets with standards and guy anchors for nets. Green canvas floor covers with court lines marked in white. (Removable in Sections.)
(c) *Storage Room for equipment.*
(d) *Home Team Accommodations.* 2 locker rooms—200 lockers. 15 showers, 6 urinals, 4 water closets, 4 lavatories. Drying Room 18′ x 24′. Space for rubbing tables.
(e) *Visiting Team Accommodations.* 3 Dressing Rooms with combined floor area of 2,000 square feet. 1 Officials' Room, 16′ x 20′. Plumbing fixtures and accommodations similar to item (d) above.
(f) *Control Room* with checking facilities.



Glasgow

Crotch spray at the swimmers' entrance to the practice pool; as a swimmer passes the turnstile at the entrance the spray is automatically released.

General notes: Amphitheater walls and ceiling treated acoustically. Playing area lighted by skylight. General artificial light—8 to 12 foot-candles. Special lighting for boxing exhibitions —30 to 50 foot-candles.

VII. Swimming, Diving and Water Polo

1. *Practice Pool*:
(a) *Pool*—165 feet long, 35 feet wide, 5 feet to 11½ feet deep. Provision for reducing depth 1 foot by means of secondary gutter level. Movable dividing bulkhead. Tiled walkway surrounding pool with minimum width of 5 feet on three sides and 10 feet at deep end. Three demountable diving-board frames—one for high board (3 meters), two for low boards (1 meter). Anchorages for floating lane markers, portable starting platforms and water polo goals.
(b) *Control Room* and Coach's office overlooking pool and bathers' entrance.
(c) *Toilets, Shower and Drying Rooms.* 16 showers, 1 automatic crotch spray, 4 urinals, 3 water closets, 2 lavatories.
2. *Exhibition Pool*:
(a) *Pool*—75 feet long, 42 feet wide, 7 feet to 12½ feet deep. Tiled walkway surrounding

pool with minimum width of 6½ feet on three sides and 18 feet at deep end. Four demountable diving-board frames—one high, three low. Anchorages for floating lane markers, portable starting platforms and water polo goals. Permanent seating surrounding pool for 2,000 spectators.

(b) *Officials' Conference Room* overlooking pool with Officials', Dressing Rooms, Shower and Toilet Rooms attached.

(c) *Home Team Accommodations.* 3 locker rooms—300 lockers. 15 showers, 6 urinals, 4 water closets, 2 lavatories. Drying Room, 16′ x 35′. Steam Room, 10′ x 20′. Rest Room 12′ x 18′; 8 cots. Office and Check Room.

(d) *Visiting Team Accommodations.* 4 Dressing Rooms with combined floor area of 2,500 square feet. 15 showers, 6 urinals, 4 water closets, 2 lavatories. Drying room, 10′ x 25′. Office and check room.

General notes 1 and 2:

Pools—¾″ ceramic tile. Walkways—large ceramic tile with nonslip surface.

Walls at pool level—Vitrolite or large tile with minimum joint area. Upper walls and ceilings treated acoustically.

Natural lighting by windows or skylight.

General artificial lighting in ceiling and underwater lighting in pools. Water purification—standard filters and chlorine and ammonia system. Water temperature—75°. Deck temperature—80°. Temperature in spectators' section—70°. Vacuum cleaning system.

VIII. General Services

1. *Lockers and Related Services*:

(a) General locker rooms (four) containing a total of 2,600 lockers (exclusive of team and staff lockers listed above).

(b) Faculty Locker Room containing 300 lockers.

(c) Toilet, Shower and Drying Rooms, in five groups (exclusive of team and special groups listed above), containing 54 showers, 27 urinals, 18 water closets, 20 lavatories. Floors—ceramic tile. Walls in shower rooms—marble. Wainscots in toilet and drying rooms—tile, 6′ high.

(d) Check Room for valuables.

2. *Cleaning and Sterilization*:

(a) Laundry. Equipment for washing and sterilizing gymnasium clothing and 6,000 towels daily.

(b) Janitors' stations with slop sinks on all floors.

3. *Public Conveniences*:

(a) Check Rooms for coats.

(b) Men's and women's retiring rooms and toilets (general public).

(c) Telephone booths.

4. *Mechanical Equipment*:

Space for heating, ventilating, plumbing and electric apparatus.

IX. General Administration and Control

1. *Entrance Lobby*:

(a) Information desk overlooking all public entrances, stairs and elevators.

(b) Box offices for ticket sales.

2. *Building Manager's Department*:

(a) Cashier's office for student fees, locker distribution, etc.

(b) Private office for Manager.

(c) Engineer's office.

(d) Telephone branch exchange.

3. *Gardener's Tool Room.*

4. *Athletic Association.*

(a) General Business Office with public space separated by banking screen.

(b) Ticket allotment space and fireproof vault.

(c) Business Manager's Office with private secretary's office attached.

(d) Chairman's Office with private secretary's office attached.

(e) Committee Room.

(f) Publicity Manager's Office.

(g) General Stenographer's Office.

(h) Fourteen offices for Student Managers of intercollegiate sports.

(i) Conference Room for Student Committee.

X. Social Rooms

1. *General*:

(a) Lobby and Club Office.

(b) Lounge Room.

(c) Reading Room.

(d) Coaches' Lounge.

(e) Billiard Room.

(f) Bowling Alley.

2. *Dining Service*:

(a) Grillroom seating 60.

(b) Serving Rooms adjoining Lounges.

(c) Kitchens.

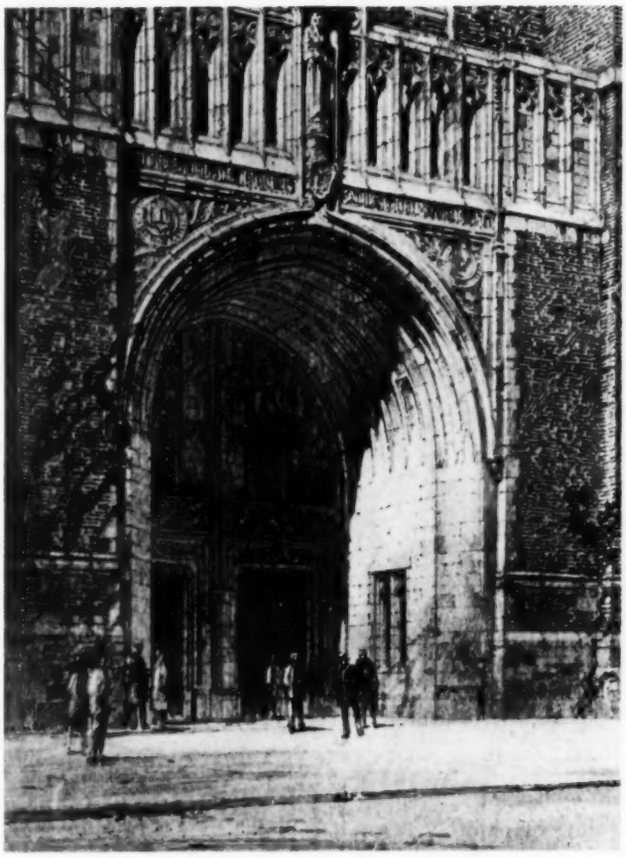
3. *Dormitory*:

(a) Seventy cubicles, each 6′ x 8′, with bed, chair and dressing table, for use of visiting teams.

(b) Toilet and Shower Rooms. 12 showers, 28 lavatories, 12 water closets, 8 urinals.

XI. Trophy Room

150 feet of glazed wall cases, 8 feet high, for displaying cups and small trophies. Upper wall space for shields and banners. Directors' table for important meetings.



MAIN ENTRANCE TO PAYNE WHITNEY GYMNASIUM
RENDERING BY OTTO R. EGGERS

PORTFOLIO OF PRODUCTS

MATERIALS and equipment described in this Portfolio of Products were used in construction of the Payne Whitney Gymnasium at Yale University by John Russell Pope, Architect. This gymnasium, described and illustrated in preceding pages of this issue of The Record, was the only American building devoted to sports to receive an award in the International Competition held in connection with the Olympic Games of 1932.

CROOKS 1886 DOORS

TO study intelligently the architect's details and specifications of veneered doors of any kind; to faithfully carry out his instructions; to serve as consultant, when invited, on difficult problems of construction; to have readily available at all times adequate, seasoned stocks of lumber and veneers in the world's cabinet woods; and finally to build into each Crooks door sufficient strength and character to carry it unimpaired through the life of the building however long that may be: these were the aims and ideals of the founder of our business to which we of the second and third generations also subscribe.

W. D. CROOKS & SONS
MANUFACTURERS - VENEERED DOORS
WILLIAMSPORT - PENNA.
"HEART OF THE EASTERN TERRITORY"

PHOTOGRAPHS on preceding pages show a few of the spaces in the Payne Whitney Gymnasium where more than 90,000 square feet of AKOUSTOLITH sound absorbing plaster were used.

AKOUSTOLITH plaster, fireproof, unaffected by water, and with a high coefficient of sound absorption is the best acoustical plaster obtainable.

Constructive tile vaults in this building were erected by

R. GUASTAVINO COMPANY
NEW YORK BOSTON

In Yale's beautiful Payne Whitney Gymnasium colorful, golden toned Briar Hill Sandstone was used for all exterior walls and cut stone trim; also for the interior cut stone trim.

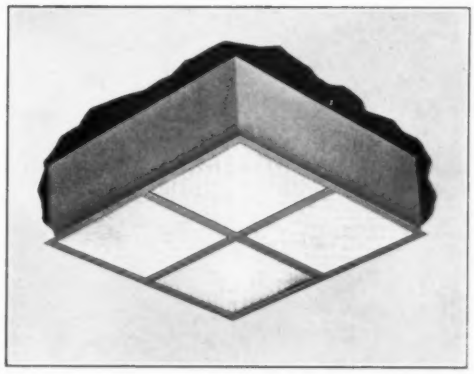
All work was executed in our mill at Glenmont, Ohio.

We will always be pleased to have an opportunity to submit estimates on cut stone or ashlar.

Write us for descriptive literature or samples.

THE BRIAR HILL STONE CO.

GLENMONT, OHIO



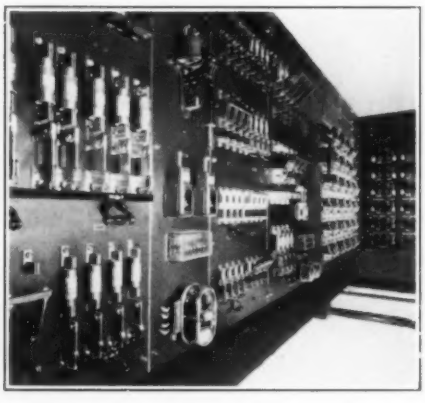
ERIKSON FLUSH TYPE "KIRBYLITE" FIXTURE

THE Erikson "Kirbylite" type of flush lighting fixtures is used almost exclusively throughout the new Payne Whitney Gymnasium. Adequate illumination correctly distributed over the playing areas has been provided for the Amphitheater, Exhibition Pool, Practice Pool, Boxing Ring, and Squash Courts. The maximum lighting results are secured with a minimum of glare by a combination system of scientifically designed lenses and reflectors.

ERIKSON ELECTRIC COMPANY

BOSTON, MASS.

REPRESENTATIVES IN PRINCIPAL CITIES



IN the Payne Whitney Gynasium at Yale, the main switchboard, similar to illustration above and all power and lighting panels are of Trumbull manufacture.

Trumbull products are used in the majority of Yale University's new buildings.

THE TRUMBULL ELECTRIC MFG. CO.

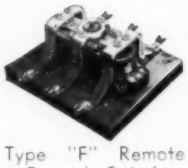
PLAINVILLE, CONN.

Whitney Gymnasium at Yale has

CONTROLLED LIGHT

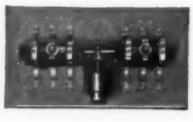
—at a Swimming meet.

Lights go out—the crowd waits. What's the matter? Oh, something wrong at the power plant.



Type "F" Remote Control Switch.

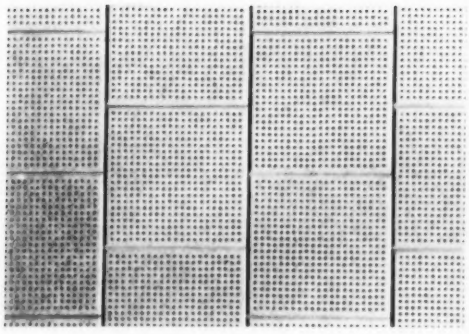
This cannot happen in the new Whitney Gymnasium. If one current supply fails for the lighting circuits, another is immediately and automatically substituted, by the means of Type "G" Remote Control Switches. Lights cannot fail. For the general lighting about the building, Type "F" switches are used to control various groups. So dependable are these Diamond "H" Switches that they are used in all Yale buildings. Reliable, safe, and economical.



Type "G" Remote Control Switch.

DIAMOND "H" SWITCHES

THE HART MFG. CO., HARTFORD, CONN.



The walls of all three rowing tank rooms in the Payne Whitney Gymnasium are treated with Acousti-Celotex. Using Type Triple B, a sound absorbing efficiency of 84% has been achieved.

Acousti-Celotex used in the Payne Whitney Gymnasium is painted with one coat of glue size and two coats of lead and oil paint. Thus a permanent, washable surface has been obtained ***without loss in sound absorbing efficiency.*** Tests have demonstrated that the application of paint does not reduce the capacity of Acousti-Celotex to absorb sound.

You will find our catalogue in Sweet's Volume B 772-775 for acoustical materials and B 652-663 for insulating materials—a convenient source of complete information.

THE CELOTEX COMPANY

919 NORTH MICHIGAN AVENUE, CHICAGO

In the Payne Whitney Gymnasium—

STEEL LOCKERS and Stainless Steel Toilet Doors by

THE HART & HUTCHINSON COMPANY

NEW BRITAIN CONNECTICUT

FOLDING PARTITIONS

by FAIRHURST

Payne Whitney Gymnasium

Yale University, New Haven, Conn.

John Russell Pope, Architect

Many new and exclusive features make Fairhurst "Unitfold" Partitions applicable for use where folding partitions have heretofore been impracticable. Among these unusual advantages are the elimination of hinges and bolts and visible hardware. The entire partition can be locked with one key and the tension joint keeps all joints tight. An odd or even number of doors may be used and the leaves can be of various widths in the same partition.

"Unitfold" Partitions have been specified for many well known buildings, such as:

Graduate School, Yale University, New Haven, Conn.
James Gamble Rogers, Architect.

Benjamin Franklin High School, South Norwalk, Conn.
Frank Irving Cooper, Architect.

Camden Athletic Club, Camden, N. J.
Paul P. Cret, Architect.

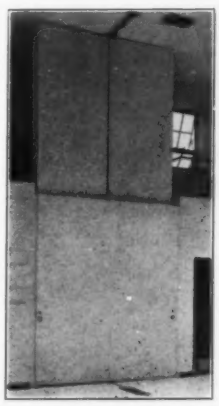
School, Hastings-on-Hudson, N. Y.
Shreve, Lamb & Harmon, Architects.

Y. M. C. A., Detroit, Michigan
Smith, Hinchman and Grylls, Architects.

For Details and Further Information, address

JOHN T. FAIRHURST

33 West 42nd Street
NEW YORK, N. Y.



Note the small space required for the folded partition.

K-3395—SPEAKMAN Anystream Self-Cleaning Shower Head. For residences and general installation. ½" I. P. female inlet. (Pat. Jan. 2, 1923 and Nov. 3, 1931.)

Speakman Shower Heads were installed in the Payne Whitney Gymnasium at Yale

TO the already long list of institutions of learning using Speakman Shower Heads is now added Yale. And no finer endorsement could be given than the selection of these heads for the Payne Whitney Gymnasium.

Speakman Shower Heads are made in many types and designs for regular and special installations. Possibly the most popular type is the Anystream Self-Cleaning Head, which permits the bather to adjust the character of the spray and the force of the water.

Included in the 49 colleges and schools throughout the country using Speakman Anystream Self-Cleaning Shower Heads are Harvard University, Massachusetts Institute of Technology, University of Illinois, Ohio State University, U. S. Military Academy at West Point, State Teachers College, West Chester, and Catholic College, Mundelein, Ill.

They also are in leading country, golf, and athletic clubs as well as hotels.

We will be glad to send a list of installations, also our 16-page bulletin showing various types of Anystream Self-Cleaning Heads for regular and special installation. It is complete with shower piping layout data and roughings-in.

SPEAKMAN COMPANY
Wilmington Delaware

SPEAKMAN COMPANY, Wilmington, Delaware
Please send us your 16-page bulletin on Speakman Shower Heads.

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SPEAKMAN
Showers & Fixtures

Refer to Sweet's Architectural Catalogues
Pages D-270, D-271, D-272

This 16-page bulletin sent promptly on request

MODERNIZE

with Macbeth *Illuminating Glassware*

★

Macbeth "ROMANESQUE"

A new shape manufactured in "Galax" (semi-indirect) glass. Utilizes most effectively the upward component of light. The lower portion of globe is dense white. Upper portion is of light opacity.

Macbeth "SEVILLE"

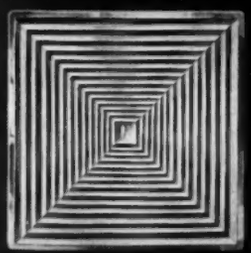
A remarkably efficient and attractive design. Obtainable in all sizes in both "Monax" and "Cremax" Glass . . . Plain and decorated.

Macbeth "TERRELL"

Distinctly "moderne" design by Maude Terrell, the famous artist in lighting effects . . . Available in both "Monax" and "Cremax" glass with lines of blue, green, brown or black around the steps.

Macbeth "RAONE"

The aristocrat of "moderne" lighting globes. A "set-back" design inspired by the newest architectural trend. "Monax" glass with panel treatment in black and green . . . Available with other decorations.



Macbeth B & B Illuminating Plate

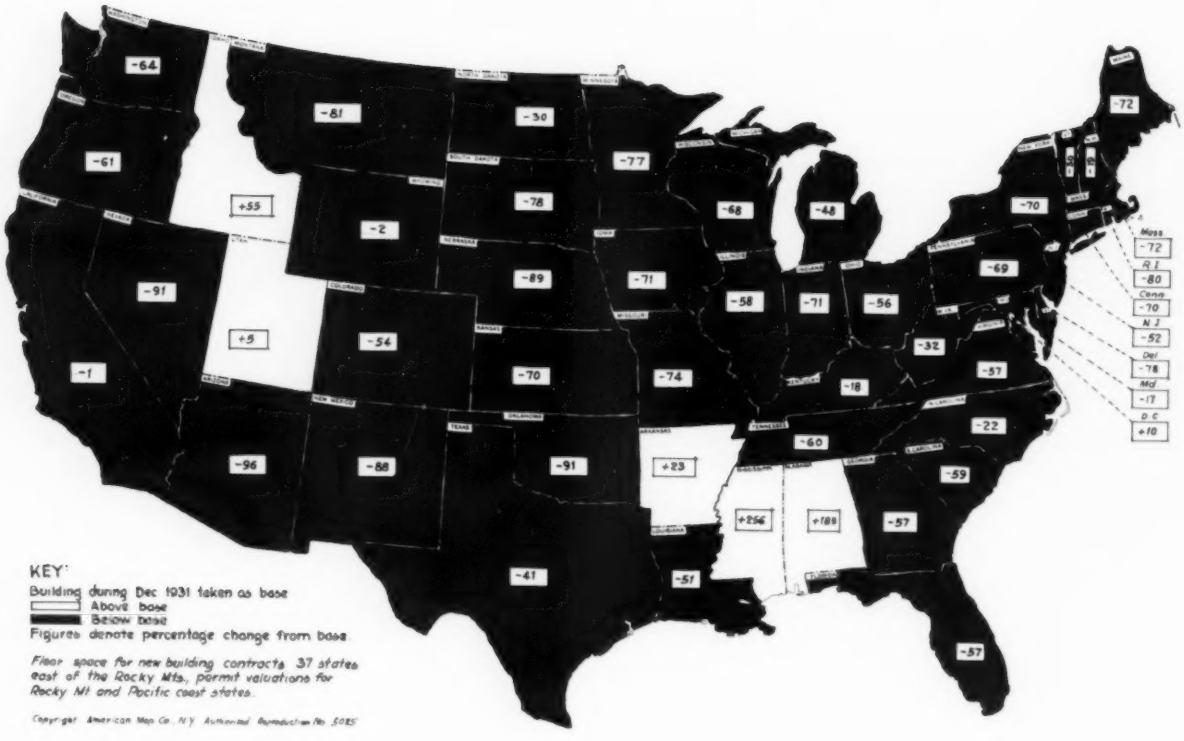
For recessed unit lighting in walls or ceiling, special luminaire designs, window lighting and other unusual effects. Lumite glass.

Macbeth Lighting Plaque

Pressed glass plaques, with open grill effect, give the final touch to decorative lighting . . . Furnished in Lumite glass, clear or with satin finish.

MACBETH-EVANS GLASS COMPANY

An up-to-date lighting system is one of the most effective and economical aids to modernization. Many worthy old buildings that are now overshadowed by newer ones can be restored to their former beauty and attractiveness for a comparatively modest investment in new decoration and in modern Macbeth Illuminating Globes. The illustrations show only a few Macbeth units that are very adaptable for the relighting of lobbies, corridors, offices, shops . . . in fact, for any purpose where efficient and beautiful illumination is essential. We shall be pleased to furnish complete information on any of the globes and elements illustrated and also to send a copy of our catalogue showing these and many other attractive Macbeth Globes in beautiful colors. MACBETH-EVANS GLASS COMPANY, Charleroi, Pa. District Offices: New York, Baltimore, Boston, Philadelphia, Buffalo, Detroit, Pittsburgh, Cleveland, Indianapolis, St. Louis, Chicago, Toronto, Houston and San Francisco.



BUILDING TRENDS AND OUTLOOK

By L. SETH SCHNITMAN

The December construction contract total for the 37 eastern states aggregated $81,219,300; this contrasts with a volume of $105,302,300 for November, and a total of $136,851,600 for December, 1931. Losses from both November, 1932, and December, 1931, were shown for each of the four major construction classes except public utilities, which showed an advance between November and December, 1932, due chiefly to larger undertakings by railroads. In December gains were scored over November, 1932, and December, 1931, for factories, chiefly because of modernization work, and educational buildings, while an increase between November and December was also shown for hospitals and institutions; but these gains were too small to counteract important losses in the remaining principal classes of nonresidential building.

For the full year 1932, contracts for all classes of construction totaled $1,351,158,700 as against $3,092,849,500 for 1931. Losses were general for each of the four major construction classes. Nonresidential building suffered a decline of almost 57 per cent from the 1931 contract total; residential building declined almost 66 per cent; public works suffered a loss of 41 per cent; while public utilities awards decreased almost 75 per cent.

The first quarter of 1933 should produce a contract total in excess of $240,000,000. During the corresponding quarter of 1932 a total of $286,078,700 was reported.

MATERIAL PRICE MEASURING ROD*

The prices in this tabulation enable one to visualize at a glance the main trend of the material market. Their significance does not extend beyond that point, and the explanation below should be read carefully.

F. W. Dodge Corporation Composite Prices as Indicated in Explanation—

Material	This Month	Month Ago	Year Ago
Portand Cement	$2.05	$2.05	$1.93
Common Brick	11.73	11.75	12.14
Structural Steel	1.60	1.60	1.50
Lumber	15.50	15.50	16.28

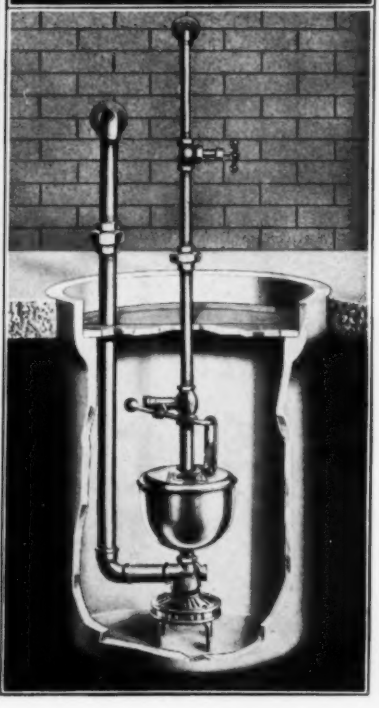
Prices given in this comparison are composite and do not in all cases refer to one item. For instance, the price of structural steel is the composite of prices of shapes and plates f.o.b. Pittsburgh; the price of lumber is a composite of five items of Southern pine and five items of Douglas fir f.o.b. mill; the price of cement is a composite of prices in fourteen different cities per barrel, carload lots, to contractors; price of brick is composite in fourteen cities per M, delivered on the job.

*As previously published in *General Building Contractor.*

RUST PROOF

COPPER AND BRONZE THROUGHOUT

PENBERTHY AUTOMATIC ELECTRIC SUMP PUMP



PENBERTHY AUTOMATIC CELLAR DRAINER (Water Operated)

PENBERTHY PRODUCTS

THE architect need not be told the many advantages of using copper and bronze in the construction of equipment for the removal of seepage water from basements, elevator sumps, piping tunnels, scale pits, etc.

Penberthy Automatic Electric Sump Pumps and Automatic (water operated) Cellar Drainers are built of copper and bronze throughout . . they cannot rust.

The design and workmanship of Penberthy Pumps are as outstanding as the quality of the materials used in them. Consequently, these pumps are trouble-proof as well as rust-proof.

There is a type and size of Penberthy Pump for every purpose. Sump covers for both electric and water operated units can now be supplied at slightly additional cost. Penberthy Pumps are stocked by leading jobbers everywhere.

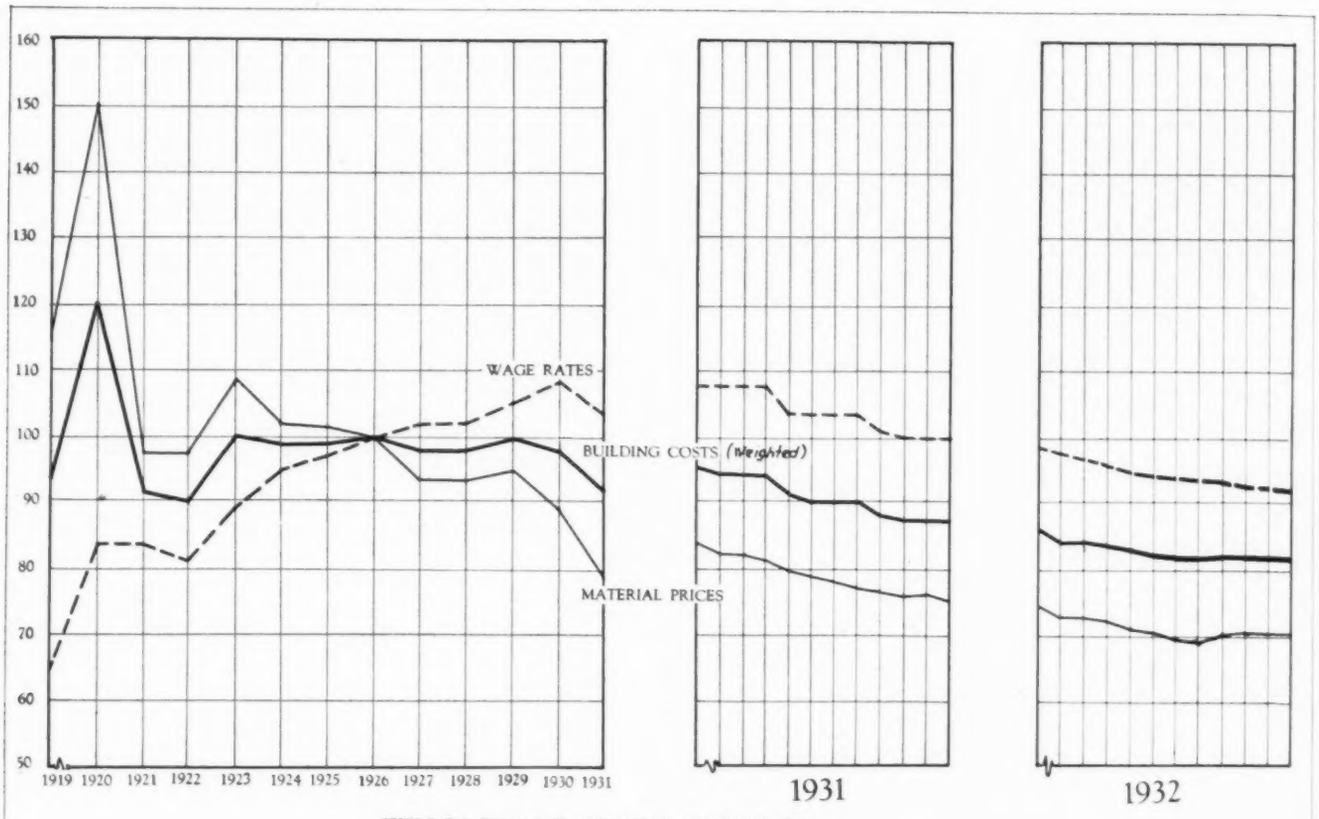
PENBERTHY INJECTOR COMPANY

Established in 1886 — DETROIT — Canadian Plant Windsor, Ont.

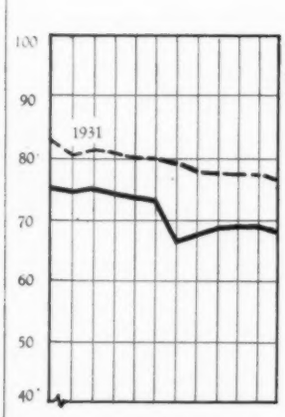
PENBERTHY PUMPS REMOVE SEEPAGE WATER

MATERIAL PRICES, BUILDING WAGE RATES AND BUILDING COSTS COMPARED

1926 Monthly Average — 100

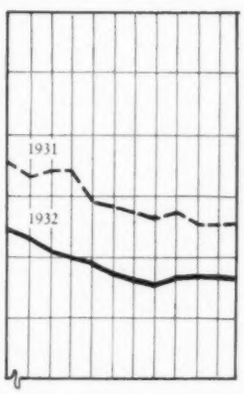


WHOLESALE PRICE INDEXES



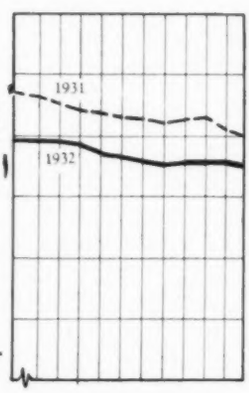
PAINT MATERIALS

Further price weakness looms for nearby months. Firming tendency may be in evidence in late Spring.



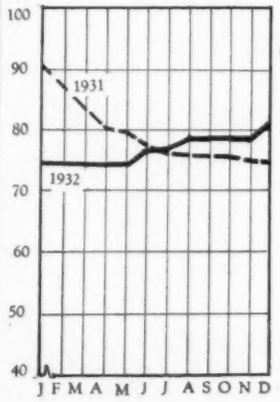
LUMBER

Recent price stability was more apparent than real; further recessions appear probable.



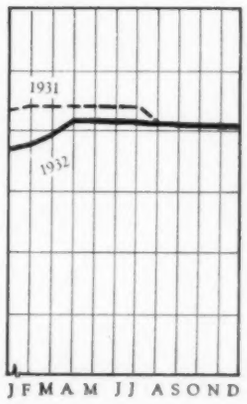
BRICK AND TILE

Indications point to continued weakening of present price structure over nearby future.



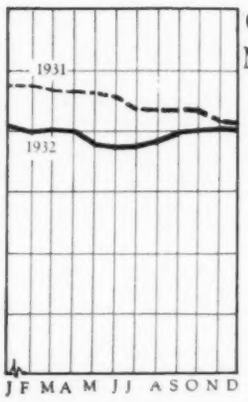
CEMENT

It is to be doubted that current indicated improvement can long be maintained.



STEEL

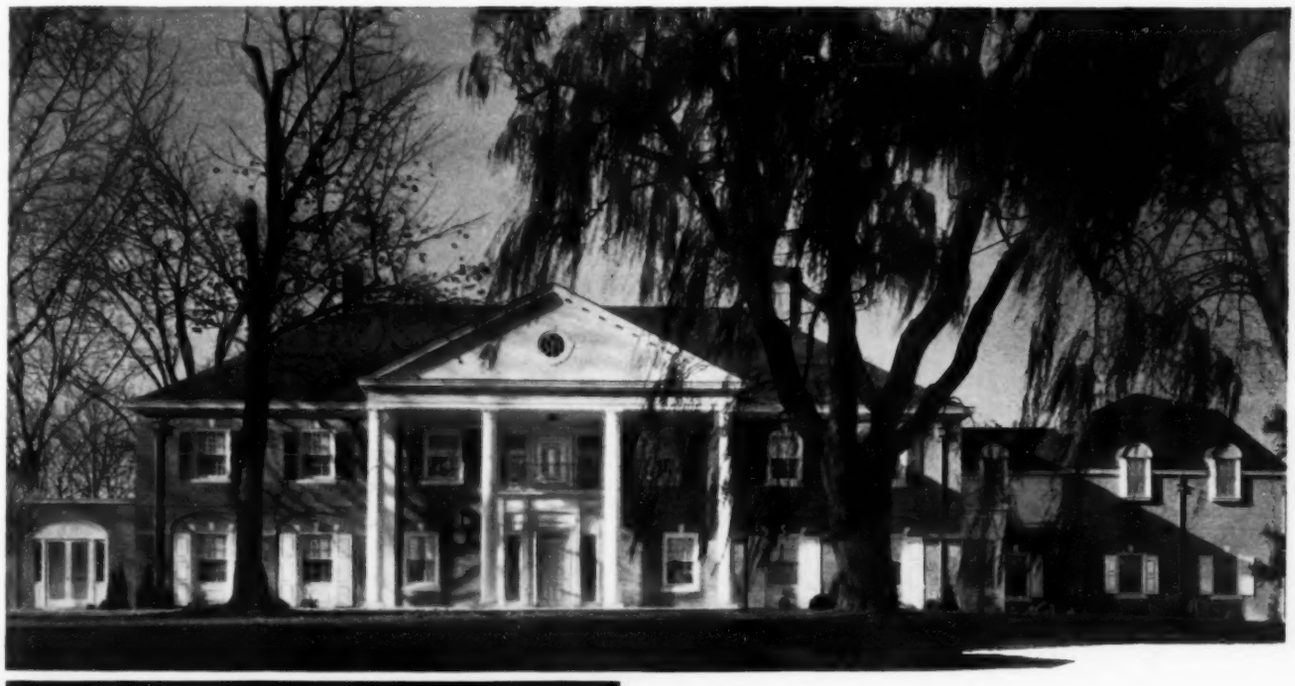
Prices for steel will not long be able to maintain the present apparent indifference to the underlying outlook for nearby demands.

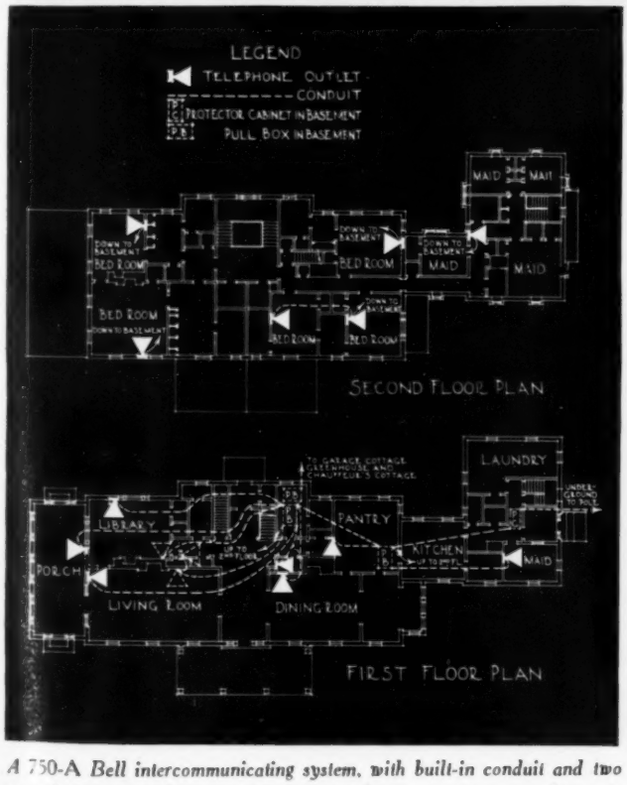


OTHER MATERIALS

Until outlook for building becomes clearer the line of least resistance for material prices seems to be downward.

An old-South mansion—*in New Jersey*—with 22 telephones for convenience!





A 750-A Bell intercommunicating system, with built-in conduit and two central office trunk lines, provides for telephone convenience on the estate of Mr. Hubert K. Dalton, Rumson, New Jersey. There are 16 outlets in the main building (including three in the basement), with six others divided among garage, greenhouse and cottages—a total of 22 in all. ALFRED BUSSELLE, *architect, New York City.*

STYLE and setting are reminiscent of fine old homes fronting the Potomac. Mellow bricks and roof slates actually came from Virginia. But this residence on New Jersey's famous Rumson Road is no slavish copy of another era. Rather, its architect has interpreted the gracious spirit of the old South in terms of modern living.

Among the many comforts he included is a Bell intercommunicating system, with built-in conduit connecting 22 telephone outlets. This conduit, run in the walls and under flooring, conceals all wiring, protects against most service interruptions, and allows outlets to be located where needed.

All details were carefully worked out in advance with the local telephone company. You may have the same service on any of your projects, large or small. Just call the Business Office and ask for "Architects' and Builders' Service." Trained telephone engineers will help you willingly and well, without charge.

WAGE SCALES IN THE BUILDING TRADES

Information Furnished by National Association of Builders Exchanges and Compiled by Division of Statistics and Research, F. W. Dodge Corporation, as of January 15, 1933

	Asbestos Workers	Bricklayers	Bricklayers' Tenders	Carpenters	Cement Finishers	Electricians	Hoisting Engineers	Iron Workers—Ornamental	Iron Workers—Structural	Laborers	Lathers	Painters	Plasterers	Plasterers' Tenders	Plumbers	Roofers—Composition	Roofers—Slate & Tile	Sheet Metal Workers	Steamfitters	Stone Masons	Tile Setters	Tile Setters' Helpers
Akron	$1.00	$1.25	$0.45	$0.70	$0.70	$0.75	$0.70	$0.60	$0.60	$0.40	*$0.87½	$0.65	*$1.00	$0.62½	$0.85	$0.80	$0.80	$0.80	$0.85	*$1.25	*$1.25	*$0.50
Atlanta	1.00	1.25 1.40	.30 .45	.70	1.25	.90 1.10	.60 1.00	.35 1.85	1.25	.25 .35	1.00 1.25	.75	1.25	.30 .45	1.25	.80	.80	.90 1.00	1.25	1.00 1.25	1.25	.40
Baltimore	1.12½	*1.25	1.00	*1.00	*1.25	*1.12½	*1.25	*1.65	*1.65	.20 .30	*1.50	*.90	*1.25	1.00	*1.00	1.00	1.00	*1.12½	*1.25	1.25	1.25	.72
Boston	1.25	*1.30	.70	*1.17½	1.17½	*1.37½	1.17½	*1.20	*1.20	.70	*1.25	*1.12½	*1.37½	*.95	*1.25	*1.17½	*1.05	1.17½	*1.25	*1.30	*1.30	*.95
Buffalo	1.12½	*1.25		*1.00	1.12½	*1.30	$49.50 to $55.00 wk.	1.12½	1.12½	.40 .60	1.12½	*1.00	1.25		1.25	.85	1.10	1.10	*1.25	*1.25	*1.18¾	
Chicago	1.37½	*1.37½		*1.31¼	1.31¼	1.25 1.50	1.31¼	1.31¼	1.35	.82½	*1.37½	*1.41	*1.37½	.88¾	1.37½	1.37½	1.40	1.37½	1.37½	1.37¼	1.37½	.96¼
Cincinnati*	1.15	1.37½	.70	1.20	1.02½	1.25	.80 1.25	1.25	1.25	.45	1.31¼	1.10	1.37½	.70	1.25	.92½	1.07½	1.07½	1.25	1.25	1.25	
Cleveland*	1.17½	1.37½	.72	1.12½	1.12½	1.05 1.25	1.12½	1.25	1.25	.72	1.37½	1.12½	1.37½	.72	1.25	1.15	1.37½	1.12½	1.25	**1.37½**	1.25	.81¼
Columbus	1.00	1.30	.62½	1.00	.80	1.00	1.15	1.25	1.25	.40	1.00	.80	1.00	.62½	1.00	.80	1.00	.80	1.00	1.30	1.25	.50
Dallas††	10.50	10.00	.50	8.00	10.00	*11.00	10.00	10.00	10.00	.35	10.00	*9.00	*10.00	* 50	12.00	8.00	9.00	*10.00	12.00	10.00	*12.00	†*.75
Dayton*	1.25	1.30	.80	1.00	1.15	1.35	1.25	1.35	1.35	.35	1.10	1.00	1.25	80	1.15½	85	1.00	1.00	1.15½	1.30	1.30	.60
Denver††	9.00	12.00 *13.00	6.50 7.00	10.00	10.00 11.00	10.00 11.00	10.00	10.00 11.00	10.00 11.00	4.00 5.00	11.00	*10.00	12.00	7 00	11 00	7 00 8 00	7.00 8 00	9.00	9.50	**12.00** 13.00	10.50	†.62½
Des Moines	1.00	1.25	.65	1.00	1.00	1.00	1.00	1.00	1.00	.55	1.00	1.00	1 25	.75	1 25	1 12½	1.12½	1.12½	1.25	1.50	1.25	.80
Detroit	1.37½	1.25 max.	.55 .60	.80 1.00	.70 .90	1.25 1.40	.60 1.00	1.00 1.20	1.00 1.25	.50 .55	1.37½	.80 1.00	1.00 1.25	70 80	1.00 1 50	70 .90	.80 1.00	.80 1.00	1.25 1.50	1.25 1.50	1.00 1.25	.80
Duluth	.85	1.10	.35 .45	.75 .85	.75 .85	.90	.80	.80	.90	.35 .45	.85	.80	1.10	70	95	.70	.70	.80	.95	.75 1.10	1.25	.80
Erie	.80 .90	1.31¼	.50 .60	.75 1.00	1.00	1.00 *1.15	1.12½	.60 .90	1.10 1.12½	.35	1.12½	.75 .90	1.31¼	50 60	1.18¾	.60 .70	1.00	1.00	*1.18¾	1.31¼	1.00	.50 .60
Grand Rapids	.65 .80	1.25	.40	.60	.65	.90	.75	.80	1 00	.35	.80	.60	80	.40	.90	.50	.70	.70	.90	1.25	1.25	.50
Houston	1.00	1.00		1.00	1.00	.95	1.00			.50	1.00	.62½	1.00		.75	60	1.00	1.00	1.00	1.00	1.00	
Indianapolis	1.32½	1.62½	.90	1.22½	1.17½	1.50	1.37½	1.45	1.45	.40 .45	1.57½	1.25	1.57½	1.00	1 00	.60 .90	1.27½	1.22½	1.50	1 62½	1.50	.60
Kansas City	1.05	1.32½	.80	1.12½	1.12½	1.50	1.12½	1.12½	1.12½	.70	1.25	1.12½	1.32½	80	1.25	.92½	.92½	1.12½	1.25	1.12½	1.25	.75
Los Angeles††	10.00	8.00	6.00	7.00	8.00	7.00	8.00	9.00	10 0 0	4.00	10.00	7 00	9.00	6.00	9.00	7.00	7.00	8 00	11 00	8.00	6.00	†.75
Louisville	1.12½	1.25	.50	.80	1.00	1.00	1.00	1.00	1.00	.25 .35	1.12½	.90	1.00	.50	1.12½	.30 .50	.85	.85	1.12½	1.25	1.00	.50
Memphis	1.00	1.37½	.50	.50 .87½	.50 .75	1.00	.75	.75	.75	.20	1.00	.75	1 25	.50	1.25	.25 .40	1.12½	1.12½	*1.25	1.37½	1.25	.50
Milwaukee	1.00	1.00	.90	.85	1.00	1.25	1.15	1.05	1.05	.50	1.00	1.00	1.00	.90	1 00	1.00	.92½	.92½	1.00	1.00	1.00	.65
Minneapolis	1.06¼	1.10	.55 .65	.75 .85	.75 .85	.90	.80	.90	.90	.45	.75 .85	.80	1.10	.70	.95	.70	.70	.80	.95	1.10	1.25	.65
Nashville	1.00	1.00		.65		.75 .87½					1.00	.80	1.00	.30		.65	.65	.65	1.25	.90	.65	
New Haven*		1.40	.50 .65	.80 1.06¼	1.40	.80 1.00	1.16¾ 1.27½	1.37½	1.37½	.50 .60	1.27½	.80 1.00	1.40	.30 .65	1.06¼	.65	1 50	1.06¼	1.06¼	1.40	1.40	
New Orleans	.65 .80	1.25	.85	.55 .75	1.00	1.25	1.25	1.25	1.25	.35 .50	1.25	.75 .90	1.25	.75	1.00 1.25	.40	.90 1.15	.90	1.05 1.25	1.50	1.25	.35
New York City††	11.20	13.20	8.80	11.20	c11.20	13.20	13.20	11.20	13.20	6.60	11.20	11.20	12.00	8.50	c12.00	10.28	12.62	11.20	11.20	13.20	11.50	8.50
Oakland††	6.40	11.00	7.00	7.20	7.20	8.00	9.00	7.20	9.60	4.10 5.00	10.00	7.00	8.80	6.00	8 25	7.03	7.10	7.50	8.25	9.00	8.00	5.00
Oklahoma City††	8.00	8.00	4.00	6.00 8 00	8.00	6.00 8.00	8.00	8.00	8.00	3.50	.80	7.00 8.00	.80	4.00	.80	6.00	6.00	8.00	3 00		11.00	†.62½
Omaha	1.32	1.00	.45	.80	.90	1.00	1.00	.90	.90	.35	1.00	.80	1.00	.45	1.00	.72½	.87½	.87½	1.00	.90	1.00	.50 .60
Philadelphia	1.12½	1.50	.35	1.00	1.05	1.25	1.18½	1.25 1.37½	1.25 1.37½	.30 .40	1.37½	.80	*1.37½	.90	1.04	1.00	1.25	1.25	1.04	1.25	1.25	6.00
Pittsburgh	*1.50	*1.50		*1.25		*1.56¼	1.37½ 1.43¾	*1.37½	1.37½	.70	*1.50	*1.18¾	*1.50		1.50	*1.25	*1.50	*1.31¼	*1.50	*1.40	1.33⅜	.88
Portland, Ore.††	8.00	*12.00	4.80	7.20	*7.20	*8.00	6.40 9.60	6.80	8.80	7.20	*8.80	7.04	*9.60	*7.20	*8.80	7.20	10.00	*8.00	*8.80	*10.00	10.00	6.00
Reading	.70 .80	.90	.75	.75	.85	.75				.35	.75	.70	.85	.75	.90		.80	.80	.90	.75	.90	.50
Richmond	.60 .65	1.25	.25 .40	.30	1.00	.80	1.90	1.25	1.25	25 to .45	1.00	80	1.25 e 1.50		.87½	.80	.80	.85	1.00	1.37½	1.25	.35 to .50
Rochester	1.01¼	1 25		*1.00	*1.12½	*1.15½	1.00	.80-*1.00	.80-1.00	.55	1.00	*1.00	*1.25		*1.17½	*.90	*.90	*1.00	*1.17½	*1.25	*1.25	
Salt Lake††		1.12½	62½	.90	1.00	1.00	1.00	1.00	1.00	1.50	1.25	.90	1.25	80¼	1 00	.90	1.00	1.00	1 00	1.12½	1 00	1.50
San Antonio††	6.00 10.00	8.00 12.00	2.50 2.00	3.00 7.00	6.00 10.00	6.00 9.00	4.00 8.00	6.00 8.00	6.00 10.00	2.00 2.75	7.00	4.00 7.00	6.00 8.00	2.00 3 00	6.00 8.00	5.00 8.00	8.00	6 00 10.00	8.00	5.00 12.00	8.00 12.00	2.00 3.00
San Francisco	8.00	11.00	7.00	9.00	9.00	9.00	9.00		11.00	5.50	8.50 10.00	9.00	11.00	7.50	10.00	8 00	8.00	9.00	10.00		10.00	
Seattle††	8.00	9.60	5.28	7.20	7.20	*8.80	8.00	8.00	8.80	4.75	*8.80	*7.20	*9.60	*6.40	*8.80	7.20	7.20	8.00	*8.80	9.60	8.00	
Sioux City	.90	1.50		1.00	.75	1.00		1.00	1.00	.40 .60	.90	.60 .90	1.15		1.00	.60 1.00	.60 1.00	.90		1.25	.60 1.00	
St. Louis	1.25	1.50	1.00	1.25	1.31¼	1.67½	1.35- 1.47	1.47	1.47	.78¾	1.25	1.25	1.50	1.06¼	1.43¾	1.17½	1.25	1.25	1.43¾	1.25	1 25	.76½
St. Paul	1 18	1 10		.75 .85	.75 .85	.90	.80	.90	.90	.45	.75 .85	.80	1.10	.70	.95	.70	.70	.80	.95	1.10	1.25	
Washington, D C.	*1.50	1 75	.50 .75	*1.37½	1.25	*1.65	*1.37½	*1 65	*1.65	.75	*1.62½	*1.37	*1.75	*.75	*1.50	*1.37½	*1.37½	*1.50	*1.50	*1.25	*1.50	.75
Wichita	.60	.75 1.25	.25 .40	.40 .75	.40 1.00	.50 .87½	.30 .75	.40 1.00	.40 1.00	.20 .40	.50 1.25	.50 .87½	.60 1.25	.25 .50	1.00	50 1 00	.50 1 00	.50 1.00	.75 1.12½	.75 1.25	.50 1.00	.25 .40
Youngstown††	*1.37½	12 00	6 80	10.00	9.00	11.00	10.00	12.00	12.00		12.00	10.00	12.00	6.80	11 00	10.20		10.00			10.00	.70

NOTE.—Where two figures are shown they are the minimum and maximum. All figures are for hour rates except as indicated. ††8-hour day. †Rate per hour. *On 5-day week basis. c Correction. Asterisk after city indicates all trades on five-day week basis.

ABOVE DATA ARE WAGE SCALES AND DO NOT NECESSARILY INDICATE ACTUAL WAGE RATES BEING PAID IN THE RESPECTIVE TRADES.

The Charm and Beauty of Cypress Now Available in TIMBERTEX

Eternit's New Tapered Asbestos Shingle Meets Wide Acceptance of Architects for Remodeling and Modernizing Work ~ ~ ~ ~

ARCHITECTS are generous in their praise of Eternit's "Cypress Textured" Asbestos Shingle TIMBERTEX*. For roofing and modernizing this shingle affords unique roofing features with values heretofore unknown in beauty, individuality, safety, durability and economy.

Under today's building conditions no Architect can afford to ignore these seven major TIMBERTEX features:

1. AGELESS AND FIRE-PROOF
   Ingredients: Portland Cement, reinforced with Asbestos Rock Fibres. Both are time and fire defying.
2. TAPERED CONSTRUCTION
   Designed to provide thickness and strength where it is most required. Needless weight eliminated.
3. CYPRESS TEXTURE
   Entire shingle textured in various designs of weathered Cypress.
4. WOOD COLORS
   Five rich, soft "wood colors" of lasting beauty. The mineral oxide colors are an integral part of the shingle.
5. STAGGERED BUTTS
   Double sets of punched nail holes permit laying irregular shingle courses.
6. DEEP SHADOWS
   Butts are approximately ¼" thick, assuring deep, heavy shadow lines.
7. MODERATE COST
   Popular price, plus ease of application permits cost in keeping with 1933 incomes.

Other Architectural Products manufactured by The RUBEROID Co. ETERNIT TIMBERTEX Dutch Laps* and ETERNIT GOTHIC Tapered Asbestos Shingles*—Massive Asphalt Shingles—Safe-N-Dry Building Paper—Bonded Built-up Roofs (Asphalt-Asbestos—Coal Tar Pitch and Felt). Architectural folders gladly forwarded upon request. Address nearest Eternit or Ruberoid office.

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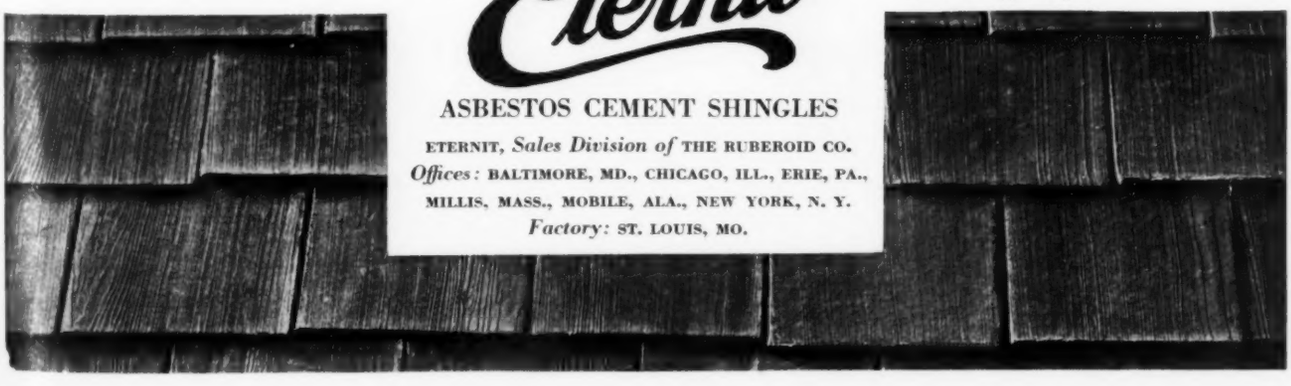
Patents applied for



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Factory: ST. LOUIS, MO.

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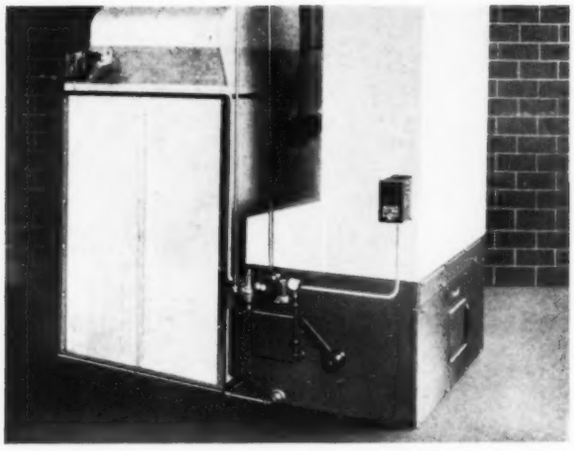


PEERLESS AIR CONDITIONER

Manufacturer—The Peerless Electric Company of Warren, Ohio.

Trade Name of Product—Peerless.

Application—Domestic, residential, commercial, and small buildings using warm-air heating systems.

Winter Temperature Control—Completely automatic, consisting of Peerless Furnacestat, any standard thermostat.

Winter Humidity Control—Humidistat, spray type humidifier.

Air Distribution—Three-speed blower.

Air Cleaning—Dry filters and spray washer.

Summer Air Circulation—Recirculated or fresh air; manually or automatically controlled.

Summer Temperature Control—Air washing, humidistat.

Ionization Factor—Optional.

Over-all Dimensions of Unit—30″ x 23″ x 27″, 45″ x 32″ x 24″.

Cost range—$112.50 to $350.

WELDED PIPE INSTALLATIONS

Some of the economies claimed for welded piping:

(1) Beveled pipe costs less than threaded pipe. Fewer joints as a rule are used.

(2) Insulation costs (asbestos lagging and covering) are much less because of smoothness of outside of welded pipe. This also reduces heat loss.

(3) A welded joint is a permanent installation that practically eliminates maintenance costs.

(4) No scrap pipe or expensive fittings are left over.

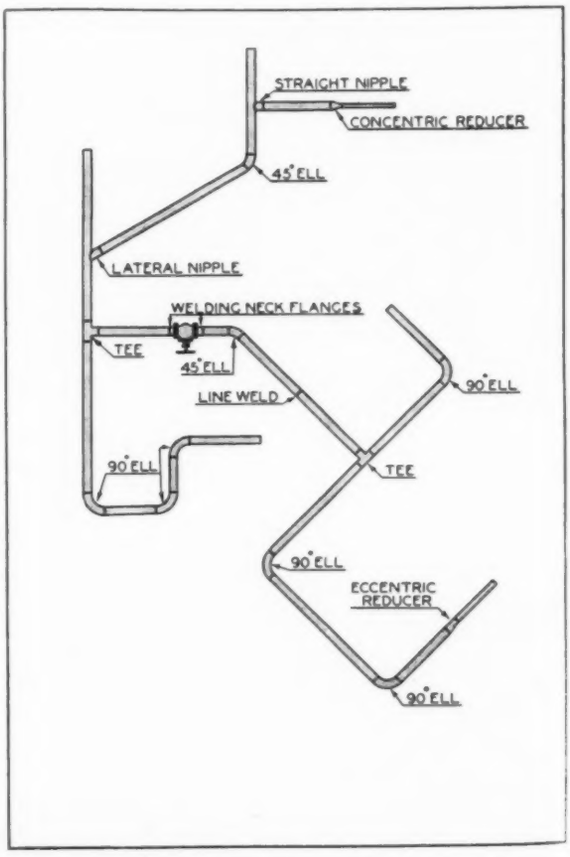
(5) No expensive and heavy pipe threading machinery has to be moved from plant to job, and then from floor to floor as the work progresses.

(6) All stock lengths of pipe which are obtainable at lower cost can be used. It is not necessary to order standard lengths, as with threaded pipe.

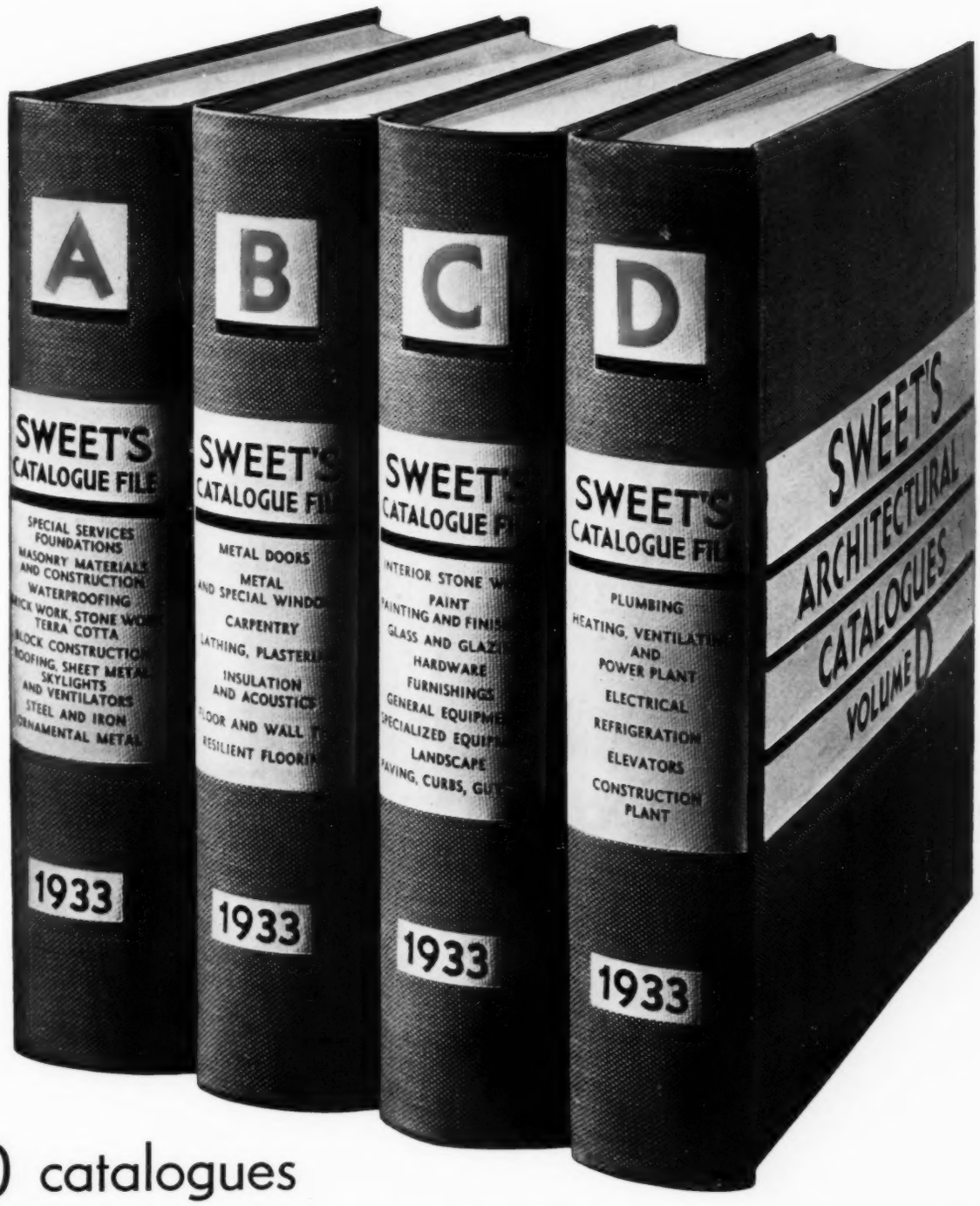
(7) The greatest potential economy in heating installations will come through the use of thin wall pipe, weighing considerably less than that now being widely employed on welded transmission lines.

A welded piping installation means a big saving in weight, which is advantageous especially in multi-story buildings. With decreased weight an installation that is as strong as the pipe itself is obtained because the welded joint is in no way weakened by threading operations required for a screwed fitting. A weld in a pipe is in reality a continuation of the pipe itself; it adds little or no weight to the pipe.

An outstanding advantage is that, with the aid of the oxyacetylene cutting and welding torch many types of fittings can be fabricated on the job. This obviates the necessity of carrying a large stock of fittings. Furthermore, some of these fabricated fittings can be made only by the oxyacetylene process. By using simplified pipe templets, the lines of intersection for these fabricated fittings are easily and accurately laid out by the journeyman welder on the job. A compact, durable fitting of the same strength as the pipe itself is produced. Large savings are effected in fabricating these fittings, because short ends of pipe that ordinarily go to the scrap pile are utilized.



Developed piping diagram showing welding fittings. Air Reduction Sales Company.



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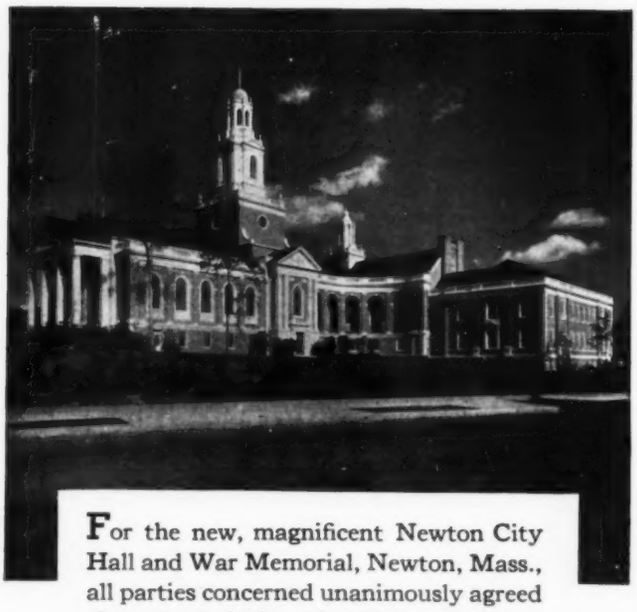

For the new, magnificent Newton City Hall and War Memorial, Newton, Mass., all parties concerned unanimously agreed that the building should be equipped throughout with the quality A. P. W. Onliwon Towels and the attractive, serviceable Onliwon White Enamel Towel Cabinets. Those responsible for installing A. P. W. Onliwon included Allen & Collens, the architects, C. S. Cunningham & Sons Construction Company, the contractors, and Mr. Harry A. Hageman, the Public Buildings Commissioner of Newton, Mass. Such unanimity is usually voiced for A. P. W. Onliwon when it comes to specifying and selecting a sanitary washroom service.

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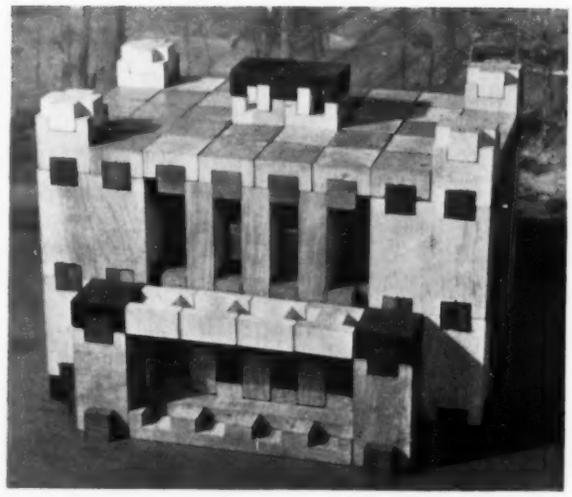

"WRIGHT BLOCKS"

Sets of patented interlocking blocks, designed by John Lloyd Wright, are being produced by the Modern Toy Building Company of Philadelphia. They are intended for architects' use in "studying wall and glass areas of contemplated designs." The blocks are to sell at $1.50 a set.

ANDERSEN CASEMENT WINDOWS

This casement window, manufactured by the Andersen Frame Corporation of Bayport, Minnesota, combines wood construction with metal. Tests show that the Andersen Casement permits 16.2% less air leakage than the average weatherstripped double-hung window. The casement is simple in construction and comes complete, ready to install.

Extension hinges permit easy cleaning of outside glass from inside.

The frame is made of clear pine, primed with Alcoa aluminum paint; narrow mullion post, transom bar and exterior molding; large glass area. New design prevents sticking or binding and provides two-point contact. Factory fitted and glazed. Stiles and rails are made of clear pine. Muntin bars of solid aluminum are exceptionally easy to clean.

Spring phosphor bronze weatherstrips insure a tight seal under most severe weather conditions. Extension hinges allow easy cleaning of outside glass from the inside.

Handles of sash operator and locking latch are solid bronze. All other parts are made of rust proof cadmium-plated steel with statuary bronze finish. Hinges are made of rust-proof cadmium-plated steel. Inside screen is fitted to slip in place. Aluminum frame, 16-mesh gunmetal aluminum wire cloth.

AIRPLANE VIEW—WELLESLEY COLLEGE, WELLESLEY, MASS. *Architects: Louis T. Klauder, Philadelphia, Pa., & Wm. T. Aldrich, Boston, Mass. Electrical Contractors: Edwin C. Lewis, Inc., & Jas. Wilkinson & Co., Boston, Mass.*

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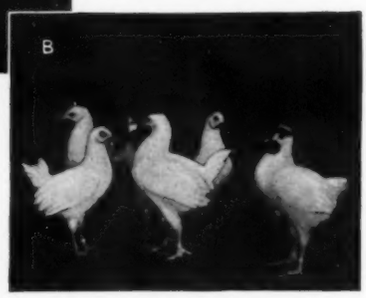
THE ARCHITECTURAL RECORD — 119 West 40th Street, New York, N. Y.

Would you believe these chicks are the SAME AGE ?

A. Six weeks old—sick, weak, and victims of rickets . . . because they were raised under ordinary glass . . . Four of the original seven died.



B. Six weeks old . . . all seven alive and normal, healthy, strong, and entirely free from rickets . . . because they were raised under Lustraglass.

Carefully controlled experiments by an authority on poultry husbandry definitely prove the biological benefits of sunlight transmitted by Lustraglass. The chicks raised under ordinary window glass were deprived of the ultra-violet rays which produce Vitamin D and prevent rickets. The chicks raised under Lustraglass received plenty of ultra-violet rays and were free of any rachitic symptoms. The photographs above show the remarkable difference.

The results of these experiments are confirmation of the fact that Lustraglass transmits a substantial volume of ultra-violet rays of sunlight . . . Because it transmits these valuable rays and because it is a clearer, whiter, flatter, more lustrous glass, and because it costs no more than any good window glass, architects and builders everywhere are specifying Lustraglass for every type of building. Send for the Lustraglass booklets A-430 and P-332. The latter contains an interesting report on the experiment with chicks.

Look for this label on every light of genuine Lustraglass.

LUSTRAGLASS
the ultra violet ray window glass

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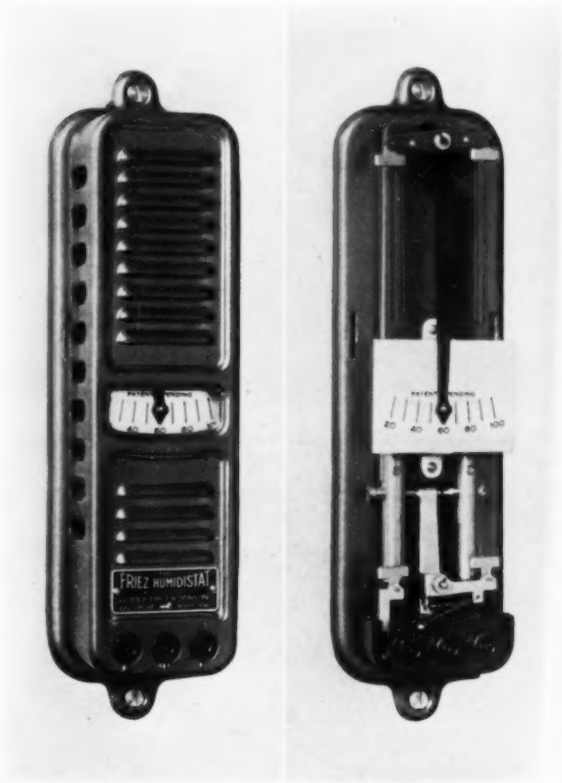
FRIEZ HUMIDISTAT

Features of this device, developed by Julian P. Friez & Sons, Inc., of Baltimore, Md., include:

1. Human hair, specially prepared and installed, as the hygroscopic element.
2. Means of setting controller by index hand along visible scale to maintain any point of humidity throughout a full range from 20 per cent to saturation.
3. Instrument so equipped that it can be used with either three-wire or two-wire contact. Thus it can be hooked up with any type of instrument relay.
4. Contacts so designed for adjustment that either a close range of humidity may be maintained, or a wider range where wear and tear of humidifying equipment is of greater value than close control of moisture.
5. Convenient terminals arranged for either open or closed wiring.
6. Careful insulation, so that, if necessary, 110-volt control lines may be run to instrument contacts.
7. Convenient dimensions suited for either industrial or domestic installation. Over-all dimensions are 6 5/8" x 2 1/16" x 1 1/8".
8. Rugged metal construction in base for permanent adjustment of parts and for insurance against breakage.
9. Complete ventilation as required for sensitivity of hairs to varying moistures.
10. Price, $15 list, f. o. b. Baltimore.



Construction shows hair elements, three wire contacts and setting lever action of the Friez Humidistat.

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By providing a CUTLER MAIL CHUTE. A building however old fashioned in other respects can be made as modern in mail service as the latest skyscraper. What the tenant wants is not so much something to look at as something to use in the transaction of his business.

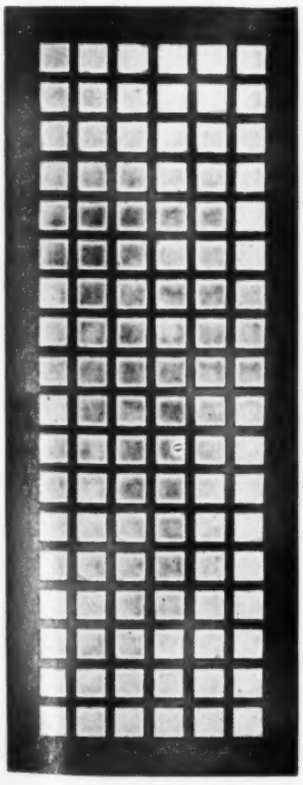
Full information, details, specifications and estimates on request.

◆◆◆

CUTLER MAIL CHUTE CO.

General Offices and Factory

ROCHESTER, N. Y.



Perforated Sheet Metal

GRILLES

Steel Brass
Bronze Copper

All gauges and sizes made to your specifications.

Prompt Deliveries on SPECIAL GRILLES

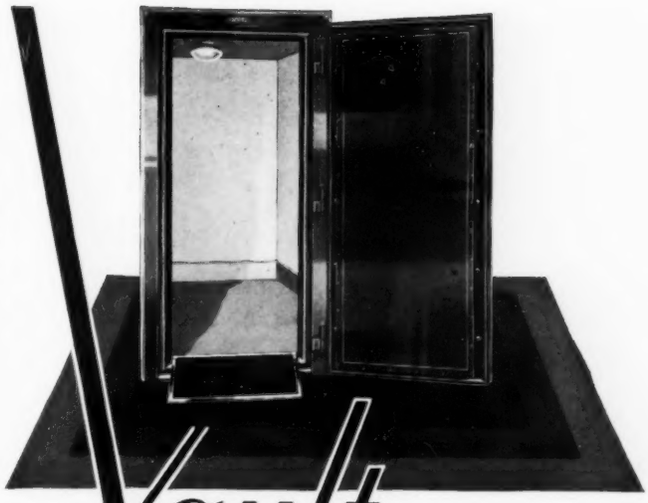
Write for quotation, advising sizes and quantities

ERDLE

PERFORATING COMPANY

Manufacturers of all kinds of Perforated Metals

ROCHESTER, N. Y.



Vault Modernization

A Service That Clients Appreciate

RECORD vault modernization offers greater possibilities than new construction. Improved protection standards should be applied to vaults now in use. Your clients will appreciate a modern check up of their present vaults.

Thousands of present old style vault doors would be rated at "*ten minutes*" by the Underwriters' Laboratories, Inc. They afford their owners uncertain protection for vital records. They should be changed to meet improved protection standards.

The fire protection of both the vault door and walls must balance. Are present vaults structurally correct? For example — basement and first floor vaults commonly suffer far more heat than upper floor vaults, and should be planned accordingly.

The best protection standards for all vault problems, based on N. F. P. A. reports, are provided on pages C-844 to C-846 of our catalogue in Sweets' 1933 edition. The complete catalogue on pages C-843 to C-856 illustrates our complete line of vault, record room and bank vault doors. Write for additional information.

●

DIEBOLD

SAFE & LOCK CO., *Canton, Ohio*

Over Seventy Years of Protection Service

A COMPLETE SERVICE

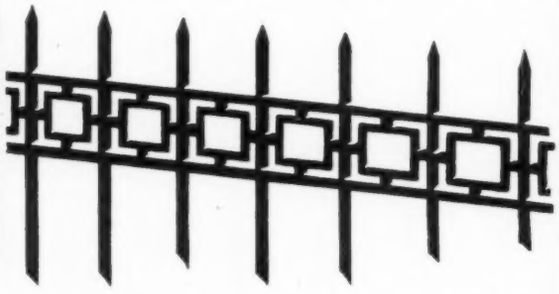
Whatever your needs in Chain Link Wire, Iron Picket or Ornamental Iron Fence and Gates of standard or special design, you will find sure satisfaction in dealing with Stewart.

The Stewart catalog and the local Stewart office ought to be noted in your files. Is it? If not, drop us a line.

Stewart IRON and WIRE FENCES

THE STEWART IRON WORKS COMPANY, Inc.

919 STEWART BLOCK CINCINNATI, OHIO



SEE OUR PAGES IN SWEET'S ARCHITECTURAL

Super-Aqua-therm Gas Underfire

DAHLQUIST

ADDS SOMETHING NEW!

To the common automatic Hot Water Storage System—householders and plumbing engineers will welcome this simple but effective invention.

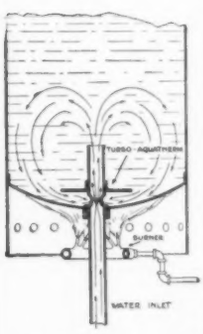
THE DAHLQUIST TURBO

Every plumbing engineer knows that every common hot water boiler is a sediment trap and that sooner or later dirty water will surge from the hot water faucet.

The Dahlquist patented Turbo positively does away with the cause of this trouble by keeping the water at the bottom of the boiler constantly agitated so that all sediment is kept in suspension (see diagram), assuring the user *fresh, clean* hot water fit for cooking and drinking purposes at all times.

Dahlquist Copper Automatic Storage Boilers are low in price—economical to operate and deliver *clean* hot water.

Write for full particulars



Turbo-Aquatherm
A new patented device which prevents mud from accumulating in the boiler.

Architects and heating engineers may rely entirely on Dahlquist workmanship and experience, whether for range boilers, automatic storage boilers or heavy pressure boilers.

DAHLQUIST MFG. COMPANY

70 WEST 3d STREET SO. BOSTON, MASS.

ANNOUNCEMENTS

(*Continued from page 15, advertising section*)

jury will be asked to select an exhibition which shows a cross section of photographic art without attempting to impose upon the photographer a narrow definition as to what constitutes a good picture. The entry blank has provision for five classes of work: (a) Pictorial, (b) Portrait, (c) Commercial, (d) Press, (e) Technical.

The Salon of Photography will open on Saturday, May 6. The last day for receiving prints is April 21. All communications should be addressed to Philip N. Youtz, Curator of Exhibitions, Pennsylvania Museum of Art, Fairmount, Philadelphia, United States of America.

TYPOGRAPHY COMPETITION

The Museum of Modern Art, New York, announces a competition in typography. The competition, open to all, is for a design, exclusively in type, of an announcement for an exhibition. The winning designs will be exhibited in the Museum's galleries, and $100 in prizes will be awarded as well as honorable mentions. The full program of the competition, which ends March 15, may be obtained by applying to Philip Johnson, Chairman of the Department of Architecture, Museum of Modern Art, 11 West 53rd Street, New York.

SERVICES OF LANDSCAPE ARCHITECTS OFFERED FOR UNEMPLOYMENT RELIEF

The members of the New York Chapter of the American Society of Landscape Architects have worked out a plan whereby they offer their services, without charge, until March 15, in an endeavor to help in the relief of unemployment during the Winter months. All members of the Chapter have been asked to notify their clients of this plan.

It is believed that if property owners could make improvements at a greatly reduced cost and at the same time help in the relief of unemployment, many would gladly do so, particularly if competent direction can be assured. It is in this connection that the landscape architects offer their services.

To every property owner who will give men, now unemployed, work on his property at the rate paid by the local unemployment bureau, to the amount which would pay ten, or more, men for six days, a member of this Chapter will give a visit of consultation or supervision for the direction of the men's work without charge, except for necessary traveling expenses, and will give an additional visit for every similar amount so expended.

If plans are needed it is agreed to prepare them at cost. Where a field superintendent is found expedient trained assistants can be secured at a low wage commensurate with their ability and training. In the preparation of plans and for field supervision employment will be given to unemployed draftsmen and assistants. This would relieve the critical condition of these people trained for work of a highly specialized type who are desperately in need of employment.

EVANS
"Vanishing
Door"
WARDROBE

•

Class X

equipped with either "Jamb" type (as illustrated) or "Floor" type hinges. This is Class P wardrobe if made with flush doors.

CLASSROOM WARDROBES

High in Quality — Low in Cost

Made to set in a recess flush with the wall. Plaster back, ends and ceiling. No partitions, but with mullions between pairs of doors. Blackboards if required. Five-shelf bookcase instead of clothing equipment at no extra charge when desired.

The "Vanishing Door" hinges on which the doors are hung are made with double pivoted arms and swing the doors back into the wardrobe entirely out of the way. Simple—trouble-proof—and last as long as the building.

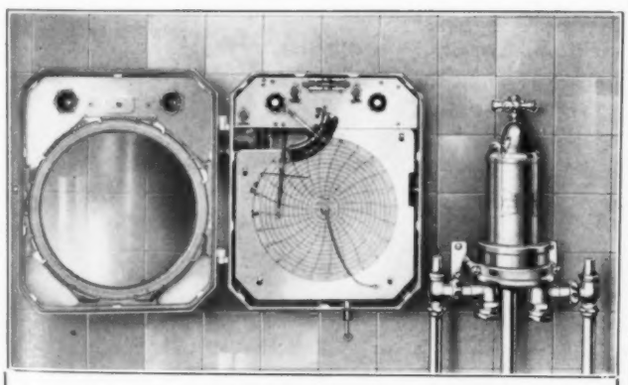
Wardrobes are furnished complete in the knock-down, with all woodwork cut to size, and only need to be nailed in place. The hinges are easier to put on than common butt hinges. The entire cost of installation is small.

We make many other types of school wardrobes, fully illustrated and described in 1933 Sweet's, Volume C, pages 774-781.

W. L. EVANS

WASHINGTON, INDIANA, U. S. A.

Continuous Flow Baths



Leonard HYDRIATRIC Suite
Reg. U. S. Pat. Off.

When you specify a
Leonard Hydriatric Suite
you have a choice of
six designs in cases
and
twelve different combinations.
Write for catalogue F which is
Standard A. I. A. File size.
In Sweet's Catalogues

Manufactured by

LEONARD-ROOKE CO.
INCORPORATED
Providence, Rhode Island

Winchton L. Risley, Architect, won first place in the Better Homes in America Competition, for this home in Palos Verdes, Calif. It is finished with Cabot's Old Virginia White.

A GOLD MEDAL

for this "simple and altogether charming solution"

For the house shown above, the American Institute of Architects awarded Mr. Risley, the architect, first place in a competition for the best one-story house built in America between 1926 and 1930.

The house, which is covered with cedar shakes finished with Cabot's Old Virginia White, was given the gold medal, because of its "simple and altogether charming solution of the problem."

Whether the house you are building is brick, stone, stucco or wood, you will find that some one of Cabot's Collopakes will help you solve your problem simply and charmingly. Cabot's Old Virginia White has all the coolness and texture of fresh whitewash, yet it is lasting as paint; Cabot's Gloss Collopakes have a lasting high gloss that stands up outdoors under severe weather conditions. They *do not fade* even in the greens. Cabot's Interior Flat Collopakes are washable flat colors for interior use. All Collopakes, because of the patented way they are made, go further, go on smoother and last longer.

Cabot's Collopakes

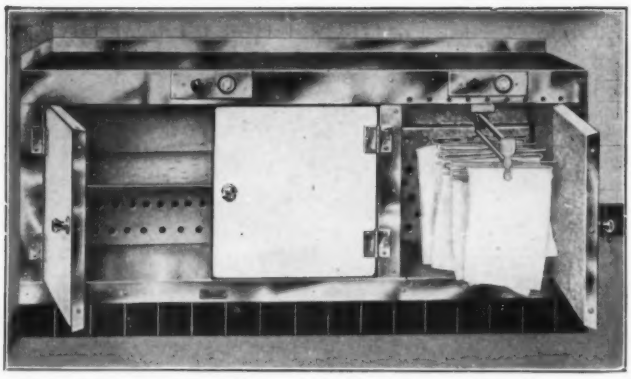
Scientific Colors for Every Paint Use

Samuel Cabot Inc 141 MILK ST., BOSTON

Please send me Collopake color card and full information on Collopakes.

Name .....
AR. 2-33

Address .....



If you want to design homes that appeal to the ladies, install a Prometheus Plate Warmer and Towel Dryer in the kitchen. It keeps food hot and flavory until served. No danger of food being dried out and tasteless. And it dries towels quickly.

PROMETHEUS

Plate Warmer and Towel Dryer

costs but little to install and is economical to operate. Can't overheat. Shuts off current automatically if accidentally left on.

Is chromium plated and handsomely finished. White porcelain doors. Removable shelves.

Approved by the Underwriters. Write for catalog.

PROMETHEUS ELECTRIC CORP.

12 Ninth Avenue New York, N. Y.

AMERICAN STAINLESS AND HEAT RESISTING STEEL

USS SHEETS AND LIGHT PLATES

AMERICAN SHEET AND TIN PLATE COMPANY PITTSBURGH

For the Building Field

Insist upon U S S Stainless Steel Sheets—produced in a number of grades and finishes, and adapted to a wide range of applications. Write for literature and full information on the following alloys—

U S S Chromium-Nickel Steels, *Austenitic:* 18-8; 18-12; 25-12.
U S S Chromium-Alloy Steels, *Ferritic:* 12; 17; 27.

USS Chromium-Nickel Alloy Steels produced under licenses of Chemical Foundation, Inc., New York, and Fried. Krupp A. G. of Germany.

This Company also manufactures high grade Black and Galvanized Sheets, Tin and Terne Plates for all known uses.

AMERICAN SHEET AND TIN PLATE COMPANY, Pittsburgh, Pa.

SUBSIDIARY OF UNITED STATES STEEL CORPORATION

THE ARCHITECT'S LIBRARY

(*Continued from page 13, advertising section*)

school proper and the smaller individual gardens for classes and for pupils. Special care is taken for proper landscaping.

Building costs are high. The use of iron and steel is avoided. Masonry is more economical than steel girders and the walls are thus built very thick. School costs have been carefully calculated on the basis of cubical contents and comparisons made with the costs of similar structures in the United States. Naturally the comparison is in favor of the German economies. A great saving is made in the construction of German schools by eliminating many architectural devices used in the United States to make buildings more "attractive" in external appearance.

The second part of the book is devoted exclusively to the publication of pictures, drawings, plans and models of many new schools in Germany and in other lands. Some details which appealed to this reviewer were the pictures of open-air classes, the marvelous shop equipment of the technical school in Vienna, the shower bath rooms with their absence of privacy in the girls' rooms as well as in the boys', the extensive foot baths in the shower rooms, and the various gymnasiums. The illustrations of the pavilion school at Frankfort are well worth studying and the models of the terraced school mentioned in this review are unique. There is a plan and an illustration of a building with four diagonal wings extending from a central hall. The plans and illustrations show few real libraries and no cafeterias.

The author displays a remarkable knowledge of the schools of his homeland, but apparently his information concerning the schools of other countries was gleaned from books and from magazines rather than from actual observation. It is unfortunate that his pictures of American schools are not truly representative of American school architecture. His main impression of American schools seems to be one of mass. His impressions of French schools are limited to a few pictures.

From the point of view of the school administrator it is unfortunate that the author did not discuss the means and methods used in financing the erection of the German schools. An additional discussion dealing with the administrative features of the construction would have proved interesting. The section devoted to comparative costs is very brief and might easily have been developed into the most valuable part of the study. As it stands, the most representative part of the whole book is the pictorial matter.

CORRECTION

Otto F. Langmann was an associate of Hobart Upjohn in the design of All Souls Unitarian Church, New York City, views of which appeared in the January issue.